

Construction and Cross-Cultural Validation of Parenting Regulatory Focus Scale

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## ABSTRACT

Based on regulatory focus theory (Higgins, 1997), parenting regulatory focus (PRF) refers to the motivations – promotion based or prevention based – behind child-rearing behaviors. Across three studies, I sought to construct and cross-culturally validate a new PRF Scale that measures parenting motivations. In the initial scale validation (Study 1), a convenience sample was collected at the Minnesota State Fair ( $N = 856$ ) to identify and number of factors and reduce scale items associated and to establish the preliminary psychometrics properties. In Study 2, a two-step tiered MTurk sampling was used to validate the PRF Scale with a more diverse parent sample ( $N = 497$ ). I specifically tested the internal and test-retest reliability, two-factor structure, and construct validity of the PRF Scale. In Study 3, the psychometric properties of the translated PRF Scale were first demonstrated in a Chinese parent sample ( $N = 356$ ). By pooling the U.S. (Study 2) and Chinese samples (Study 3), measurement invariance (i.e., configural, metric, and partial scalar invariance) was established through multi-group confirmatory factor analysis between countries. These three studies demonstrate the psychometrics of the new PRF Scale and its contribution as an effective tool to understand individual differences in parenting motivation.

Keywords: parenting, regulatory focus, scale construction, cross-cultural

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## CHAPTER1: INTRODUCTION

Human beings are motivated to approach pleasures and avoid pains, which Higgins (1997) refers to as regulatory focus. Scholarship on regulatory focus has enumerated the implication of these hedonic principles on a range of human behaviors, such as negotiations (Appelt & Higgins, 2010), role models (Lockwood, Jordan, & Kunda, 2002), consumer behaviors (Avnet & Higgins, 2006; Pham & Chang, 2010; Pham & Higgins, 2005), occupational outcomes (Lanaj, Chang, & Johnson, 2012), health interventions (Adams, Faseur, & Geuens, 2011) as well as mental health interventions (Strauman et al., 2006; Strauman, Goetz, Detloff, MacDuffie, Zaunmüller, & Lutz, 2013). However, research on regulatory focus in the domain of *parenting* is limited. Among all human behaviors, parenting is perhaps the most unique and complex situation where parents are potentially passing on these approach and avoidance motivations to their offspring. This study sought to develop a new self-report scale to assess regulatory focus in the domain of parenting. Specifically, the study presents the construction and validation of the Parenting Regulatory Focus Scale using classical test theory to establish cross-cultural validity from the U.S. and China.

*“My daughter thinks going to school here is just wonderful! In Hong Kong, if my daughter were to score 9 out of 10 in her dictation, her teacher would reprimand her for missing the one word. But here, the teacher compliments her on knowing the 9. The system here is so different—they focus on what you do well, not on what you don’t.” – from Lee, Aaker, and Gardner (2000)*

This opening scenario from an immigrant mother illustrates the dynamic socialization process of approach and avoidance as seen through different cultural contexts. The caregivers in Hong Kong reprimanded the child for missing 1 out of 10 words, whereas the caregivers in the U.S. complimented the child for correctly gaining 9 out of 10 words. Although caregivers in both cultures wanted to help children succeed in school, these two approaches reflect distinctive motivations behind child-rearing behaviors to achieve the same goal. Thus, in this dissertation, I constructed and cross-culturally validated a new scale to measure these two parenting motivations.

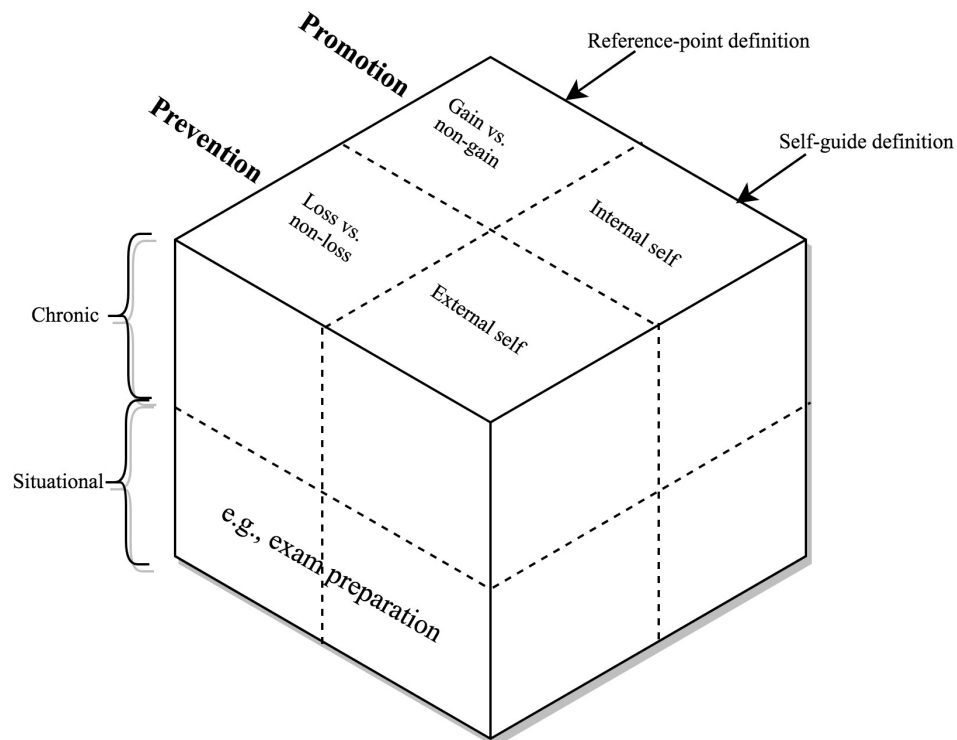
In this chapter, I first review the literature on regulatory focus theory. I discuss regulatory focus theory and its empirical findings, and issues of measurement, socialization, and personality regarding regulatory focus. I then introduce a domain-specific construct – parenting regulatory focus based upon regulatory focus theory. In proposing a theoretical model to understand parenting regulatory focus, I highlight the needs to study parenting regulatory focus in juxtaposition to self-regulatory focus and parenting styles. Lastly, I discuss the rationale to adopt a cross-cultural research framework to study parenting regulatory focus.

### **Regulatory Focus Theory**

Regulatory focus theory (RFT; Higgins, 1997) proposes two distinct motivations, *promotion* and *prevention regulatory focus*, behind all goal-oriented behaviors. As illustrated in Figure 1, these two motivations can be defined through the reference-point or self-guide perspective (Summerville & Roese, 2008). In the reference-point definition, a promotion regulatory focus is sensitive to the reference-point of gain and non-gain, and a prevention regulatory focus is sensitive to the reference point of loss and non-loss. In the self-guide definition, promotion regulatory focus emphasizes internal standards of the self, such as achieving personally important aspirations, ideals, and ambition, and prevention regulatory focus emphasizes external/socially based standards of the self, such as fulfilling what one ought to do including obligations, duties, and responsibilities.

Promotion and prevention regulatory focus are proposed to be relatively independent and correlated dimensions rather than two ends of the one dimension (Scholer & Higgins, 2008), so that an individual could be high or low on both promotion and prevention regulatory foci. Moreover, regulatory focus can be both chronic and situational (Crowe & Higgins, 1997). An individual can be chronically inclined to experience a certain state, and specific regulatory focus can be induced temporarily by the current state for different strategic inclinations (Crowe & Higgins, 1997). Higgins (2002) explained the chronic form of regulatory focus largely derives from a person's developmental history and how the person was socialized in his or her childhood.

As an example of regulatory focus to academic situation, for the same goal of preparing for a final exam, ideal self-regulation, as a promotion self-guide, focuses more on the achievement of self-confidence and success in passing the exam. Promotion-orientation strategies, as a promotion reference-point, involve engaging in activities that lead to the goal of passing the exam (e.g., joining in a study group). In contrast, ought self-regulation, as a prevention self-guide, focuses more on the fulfillment of responsibility and rules in passing the exam. Prevention-orientation strategies, as a prevention reference-point, involve refraining from activities that do not lead to the goal of passing the exam (e.g., watching TV to procrastinate). The adoption of both, either, or neither of the regulatory foci in turn has unique effects on the subsequent behaviors and outcomes.



*Figure 1.* Illustration for definitions of promotion and prevention regulatory foci.

Numerous research studies have demonstrated the influence of regulatory focus on one's preferred means of eagerness (promotion) or vigilance (prevention) in economic decision-making (e.g., Crow & Higgins, 1997; Higgins, 2001; Pham & Chang, 2010). These findings have been extended in applied settings such as occupational outcomes (Lanaj, Chang, & Johnson, 2012), health interventions (Adams et al., 2011; Zhao & Pechmann, 2007) as well as mental health interventions (Strauman et al., 2006; Strauman, Goetz, Detloff, MacDuffie, Zaunmüller, & Lutz, 2013). Moreover, people experience “feeling right” about what they are doing if the preferred means are used, thus will be more engaged in the goal-pursuit activities, which is known as regulatory fit (Higgins, 2000; Higgins, 2005). For example, in comparing smoking-cessation campaigns, young smokers with a promotion regulatory focus were more persuaded by sadness-joy campaigns (e.g., ad that depicted the benefits after quitting smoking) than fear-relief campaigns (e.g., ad that depicted the negative health consequence with smoking), and this pattern of results were reversed for young smokers with a prevention regulatory focus (Adams et al., 2011).

### **Measurement of Regulatory Focus**

One gap in the literature on regulatory focus is concerns about its measurement. Comparisons across popular measures of regulatory focus – including Regulatory Focus Questionnaire (RFQ; Higgins, 2001), General Regulatory Focus Measure (GRFM; Lockwood et al., 2002), Behavioral Inhibition/Activation Systems Scale (BIS/BAS;

Carver & White, 1994), Selves Questionnaire (Higgins et al., 1986), and Self-Guide Strength Measure (Shah, Higgins, & Friedman, 1998) – indicate a lack of convergence and predictive ability among these scales (Haws, Dholakia, & Bearden, 2010).

Correlations among five scales indicate minimal convergence, except for moderate convergence of the BIS/BAS and the GRFM subscales. The Self-Guide Strength Measure, in particular, showed low to non-existent correlations with other scales (Haws et al., 2010). In comparing RFQ to GRFM, Summerville and Roese (2008) concluded that the two scales were largely uncorrelated and each scale aligns with a specific definition of self-regulatory focus. Specifically, RFQ focused on the reference-point definition, whereas GRFM focused on the self-guide definition. Therefore, future research on regulatory focus needs to address these measurement concerns and integrate both definitions of regulatory focus.

Haws et al. (2010) concluded the RFQ emerged as the most suitable measure out of the five measures for general purpose theory testing due to its internal consistency, homogeneity, stability, predictive validity, and representativeness. Although the RFQ is the most frequently used self-regulatory focus scale, four out of five prevention items rely on indicators about obeying one's parents. For example, item 2 “growing up, would you ever ‘cross the line’ by doing things that your parents would not tolerate?” or item 5 “I obeyed rules and regulations that were established by my parents” (See Appendix). In contrast, none of the promotion items tap into the parent-child interactions. Thus the RFQ items may reflect the lack of theoretical clarifications in the item creation process. Haws

et al. (2010) also commented on the absence of emotional content and past orientation in these items as another cautionary note.

### **Socialization of Regulatory Focus**

At the core of RFT, Higgins (1997, 1998, 2000) emphasized parental socialization, where children learn from interactions with their caregivers to regulate themselves in relation to regulatory foci. Higgins and Silberman (1998) theorized different styles of caregiver-child interaction influence children's regulatory focus at different developmental stages. They proposed to "distinguish between different styles of socialization in terms of their regulatory focus, and then relate different types of regulatory focus to distinct worldviews that children can acquire," which included "nurturance-oriented parenting, which instills a promotion focus in children, and security-oriented parenting, which instills a prevention focus in children." (Higgins and Silberman, 1998, p. 78-80).

Although it seems imperative to empirically test this dynamic process of parent-child interaction (Higgins, 1998), studies on regulatory focus in the context of parenting are limited. One study found that the prevention self-regulatory focus of college students was positively correlated with active restrictive parenting in their childhood, and promotion self-regulatory focus was positively correlated with the active responsive style (Keller, 2008), thus providing some preliminary evidence about the antecedents (i.e., parenting styles) of one's self-regulatory focus. Yet, it remains unknown about the complex relationship among parent's self-regulatory focus, parenting regulatory focus,



parenting styles and behaviors, as well as the child outcomes including child's self-regulatory focus. The first step to unraveling these associations is to develop the measurement of parenting regulatory focus.

### **Personality Traits and Regulatory Focus**

General regulatory foci have been theorized to be a personality construct in the Cybernetic Big Five Theory (CB5T; DeYoung, 2015) and by McAdams and Pals (2006). In the Cybernetic Big Five Theory (CB5T), DeYoung (2015) argues that personality traits and characteristic adaptations provide a complete description of individual difference constructs, including regulatory focus. In CB5T, personality traits are defined as “probabilistic descriptions of relatively stable patterns of emotion, motivation, cognition, and behavior, in response to classes of stimuli that have been present in human cultures over evolutionary time (DeYoung, 2015, p. 35),” and characteristic adaptations are defined as “relatively stable goals, interpretations, and strategies, specified in relation to an individual's particular life circumstances” (DeYoung, 2015, p. 38).

Regulatory focus is viewed as either a personality trait in CB5T, or characteristic adaption by McAdams and Pals (2006). In both theories, motivations are subsumed under the umbrella term of personality. In a meta-analysis that supports this claim, Lanaj et al. (2012) found personality traits were moderately correlated with general regulatory focus. Promotion regulatory focus was related to extraversion ( $\rho = .36$ ), openness ( $\rho = .26$ ), and agreeableness ( $\rho = .24$ ), whereas prevention regulatory focus was related to neuroticism ( $\rho = .21$ ). Conscientiousness was related to both promotion ( $\rho = .42$ ) and prevention ( $\rho$

= .12) regulatory foci.

### **Regulatory Focus across Domains**

Although both models offer an integrative framework for incorporating regulatory focus into personality theories, there is value in studying regulatory focus as a proximal construct to domain-specific outcomes, separated from personality constructs.

One area of concern of RFT is the intersection between regulatory foci and specific domains. In other words, are regulatory foci stable and consistent across domains of parenting, occupation, consumer decision-making, health and mental health? Or do regulatory foci vary in strength and direction across these domains? Few studies have compared general regulatory foci and domain-specific regulatory foci side by side. Wallace, Johnson, and Frazier (2008) developed a work-specific regulatory focus scale, and the scale demonstrated incremental validity above and beyond general measures of regulatory focus in predicting occupation-related outcomes. In Lanaj et al.'s meta-analytical path analysis (2012), both general and work-specific regulatory foci mediated the relationship between personality traits and work-related outcomes (i.e., task performance, organizational citizenship behavior, counterproductive work behavior, safety performance, and innovative performance). This result suggests that regulatory foci on a certain domain (i.e., work) add more specificity in predicting domain-related outcomes.

In the opening scenario, regulatory focus was described in the context of the caregiver-child relationship (thus not general regulatory focus). In any parent-child

interaction, parents may be highly promotion-oriented in their general regulatory focus (e.g., take risks in career choices for promotion and achievement), and the same parents can be highly prevention-oriented in the domain of parenting (e.g., making sure their children are safe and secure). Therefore, it is important to consider how RFT can be applied to the context of parenting.

### **Parenting Regulatory Focus**

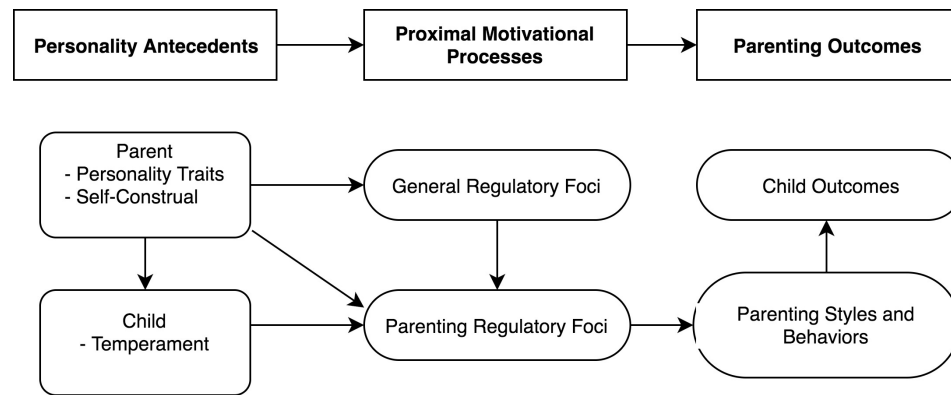
Based upon the literature on regulator focus, **parenting regulatory focus (PRF)** refers to two distinct and coexisting motivations behind child-rearing behaviors. PRF provides answers to the question what parents want in their children. In alignment with both the reference-point and self-guide definition, **promotion-oriented parenting regulatory focus** orients the children to approach and maximize opportunities (e.g., encourage the children to try out different games and activities) while limit lost opportunities (e.g., do not encourage children to stay in their comfort zone). Promotion-oriented parents are more concerned with helping children to achieve happiness, self-esteem, confidence, autonomy, independence, aspiration, accomplishment, and individual pursuits. **Prevention-oriented parenting regulatory focus** orients the children to do what is right and expected (e.g., do not reprimand the children when they behave properly) while avoiding poor choices and disappointments (e.g., reprimand the children when they behave improperly). Prevention-oriented parents are more concerned with helping children to maintain safety, security, obligation, responsibility, and societal and reliable pursuits.

Children need to have both promotion and prevention to survive, and parents provide these fundamental survival needs to their offspring across a variety of situations. Thus, promotion-oriented and prevention-oriented parenting regulatory foci are arguably independent yet interrelated dimensions. Similar to the typology of handedness (i.e., left or right handedness, mixed-handedness, ambidexterity), parents can have the configurations of a chronic, dominant PRF dimension or not, and the activation of a PRF dimension can be highly situation dependent. These configurations or tendencies in PRF will have unique effects and consequences on their parenting behaviors. In a qualitative study, Eiser, Eiser, and Greco (2002) coded the interviews with mothers of survivors of childhood cancer in promotion (e.g., “you feel poorly, but it will make you feel better”) or prevention-focused parenting (e.g., “we tell him, if he doesn’t take it, it will come back”). They found that although parents overall reported more promotion than prevention-focused parenting, only prevention-focused parenting was correlated with lower quality of life in children.

Parenting regulatory focus, as a domain-specific construct, is theorized to be distinct from general regulatory focus. Lanaj et al. (2012) made a similar argument on the theoretical integration of regulatory focus in the work domain. Lajal et al.’s (2012) meta-analytic path models found personality traits were related to work behaviors via the general regulatory focus and work-specific regulatory. Parenting regulatory focus can also be viewed as the mediator in explaining the relationship between general regulatory focus and parenting behaviors. However, the parenting domain arguably differs from the

work domain in its dynamic, interactive nature between the caregivers and the offspring. Therefore, in theory, parenting regulatory focus is not only influenced by the parents' general self-regulatory focus, which in turn is influenced by parents' personality antecedents; additionally, parenting regulatory focus is influenced by the personality antecedents of the children.

As shown in Figure 2, in light of these intricate factors in play, I proposed a model of parenting regulatory focus that integrates the parent-child interactions into the distal-proximal framework adapted from Lanaj et al.'s (2012) work-specific regulatory focus model. In this conceptual model of parenting regulatory focus, personality antecedents encompass both parent (e.g., personality traits, self-construal) and child (e.g., temperament) aspects that serve as the distal factors in determining the proximal motivational processes, and subsequently parenting outcomes. Parenting regulatory foci are theorized to be influenced by the parent's general regulatory foci, as well as these personality antecedents. However, reviews on the relationship between parent personality and child temperament (Eder & Mangelsdorf, 1997), and the relationship between parenting styles and behaviors and child outcome (Frick, 1994; Maccoby & Martin, 1983) are beyond the scope of current paper and available elsewhere. The focus will instead be on the constructs and mechanisms that are related to general regulatory focus and parenting regulatory focus in the next section.



*Figure 2.* A conceptual model of parenting regulatory focus.

### **Child Temperament**

There is growing attention to understand child adjustment in a transactional model where parenting and child characteristics are mutually influential (Lengua & Kovacs, 2005; Rothbart & Bates, 1998). Temperament is a construct that characterizes individual differences in children in terms of reactivity and self-regulation (Rothbart, 1989). Child temperament can directly impact child development or influence parent-child relationship (Rothbart & Bates, 1998). There is some evidence suggesting irritability in infant and toddler predicts parenting styles of unresponsiveness, lack of contingent responding, and harsh control (e.g., Braungart-Rieker, Garwood, & Stifter, 1997; Lengua & Kovacs, 2005), whereas child fearfulness and positive emotionality predicted greater maternal acceptance (Lengua & Kovacs, 2005). Thus, one can expect a higher prevention-based PRF in raising children who present more behavioral difficulties or negative affect, and a higher promotion-based PRF in raising children who present more fearfulness and positive affect. In Figure 1, child temperament is theorized to influence parenting behaviors via parenting regulatory focus.

## **Parenting Styles and Practices**

Another important aspect of parenting regulatory focus is its theoretical distinction from the classic tripartite permissive, authoritarian, and authoritative parenting styles model (Baumrind, 1966; Baumrind, 1967; Baumrind, 1971). Whereas the latter concept focuses on clusters/typologies of parenting behaviors, the concept of PRF focuses on the motivations driving behind the parenting styles or behaviors.

The delineation of the three parenting styles is derived from observations of parents in describing the naturally occurring combinations of parenting behaviors (Baumrind, 1966). Baumrind (1966) wrote that “permissive parent attempts to behave in a nonpunitive, acceptant and affirmative manner towards the child's impulses, desires, and actions” (p. 889), “the authoritarian parent attempts to shape, control, and evaluate the behavior and attitudes of the child in accordance with a set standard of conduct, usually an absolute standard, theologically motivated and formulated by a higher authority” (p. 890), whereas “the authoritative parent attempts to direct the child's activities but in a rational, issue-oriented manner” (p. 891).

In deconstructing these parenting styles, Maccoby and Martin (1983) described two essential components of parenting styles to be responsiveness (other labels include acceptance or warmth) and demandingness (other labels include behavioral control or regulation). In this model, authoritarian parenting style is characterized by high in demandingness but low in responsiveness. Authoritative parenting style is characterized by high on both demandingness and responsiveness. Permissive parenting style is further

divided into indulgent parenting styles (low on demanding and high on responsiveness) and neglecting parenting style (low on both demanding and responsiveness). A third dimension on autonomy-granting has also been theorized as “the extent to which parents employ non-coercive, democratic discipline and encourage the adolescent to express individuality within the family (Steinberg et al., 1991).”

There is some knowledge about the formation of one’s self-regulatory focus as influenced by early parenting styles (Keller, 2008). For example, using a college student sample, Keller (2008) found that participants’ prevention regulatory focus was positively correlated with parents who raised them in active restrictive parenting style (reflecting authoritarian parenting), and participants’ promotion regulatory focus was positively correlated with parents who raised them in the active responsive style (reflecting authoritative parenting). Another recent study found general regulatory foci and parenting styles both impact parents’ preferred message framing towards children (Sasaki & Hayashi, 2015). However, little is known about how general or parenting regulatory foci influence parenting styles and behavior.

At the core of the promotion-based parenting regulatory focus, it emphasizes the development of an ideal self in children (e.g., independence, confidence), and eagerness to pursue desired outcomes (i.e., gains vs. non-gains). Translated into parenting practices, promotion motivated parents can help children to approach and maximize opportunities (e.g., encourage the children to try out different games and activities) while helping them to limit lost opportunities (e.g., do not encourage children to stay in their comfort zone).



These parenting practices will help children achieve happiness, self-esteem, confidence, autonomy, independence, aspiration, accomplishment, and individual pursuits.

Consequently, caregivers with a predominantly promotion-oriented PRF are more likely to engage more in appraising child and providing promotion, which is in alignment with the warmth dimension and autonomy-granting dimension of parenting styles.

In contrast, the prevention-based parenting regulatory focus emphasizes the development of an ought self in children (e.g., safety, responsibility), and vigilance to avoid undesired outcomes (i.e., non-losses vs. losses). Translated into parenting practices, prevention motivated parents can help children to do what is right and expected (e.g., do not reprimand the children when they behave properly) while orient children to avoid poor choices and disappointments (e.g., reprimand the children when they behave improperly). These parenting practices will help children maintain status, reputation, safety, security, obligation, responsibility, and societal and reliable pursuits. Consequently, caregivers with a predominantly prevention-oriented PRF are more likely engage more in limit and rule setting and providing security, which is in alignment with the demandingness dimension of parenting styles.

### **Cross-Cultural Psychology Framework**

To fully understand the opening scenario where the immigrant mother reflected upon the cross-cultural differences in socialization practices of regulatory focus, it is necessary to incorporate theories and methodologies from cross-cultural psychology in understanding the parenting regulatory focus model.

## **Regulatory Focus and Self-Construal**

Research by Lee and Aaker first revealed promising directions in adopting a cross-cultural framework in studying self-construal and self-regulatory focus (Aaker & Lee, 2001; Lee, Aaker, & Gardner, 2000). This line of research is situated in the Higgins's (2000; 2005) regulatory fit theory (i.e., fit between culture and regulatory focus strategies), which posits that people experience "feeling right" about what they are doing if the preferred means are used, thus they will be more engaged in the goal-pursuit activities. Through a series of experiments, Lee et al. (2000) demonstrated that individuals whose independent self-construal is more accessible are prone to have a promotion regulatory focus, whereas individuals whose interdependent self-construal is more accessible are prone to have a prevention regulatory focus, above and beyond the cultural orientations. That is, both Hong Kong Chinese students whose interdependent self-construal is chronically more accessible, as well as European American students whose interdependent self-construal is made salient temporarily, tend to be more prevention-oriented (vice versa for promotion orientation).

There are several cautionary factors in extrapolating these findings to parenting regulatory focus. First, in Lee et al.'s (2000) experimental manipulations, individuals with interdependent self-construal perceived an event (i.e., the final match in a tennis tournament) to be more important when they were prompted to think about losing or not losing the tournament (prevention condition) than when they were prompted to think about winning or not winning the tournament. These experimental manipulations exclusively

focused on the reference-point definition. Given the distinctiveness of reference-point versus self-guide definitions of regulatory focus (Sumerville & Roose, 2008), it is unclear how self-construal will be related to a self-guide definition of regulatory focus. Secondly, regulatory focus was never measured as an individual difference construct in Lee et al. (2000), but rather “regulatory focus” was replaced as message framing during the experimental manipulation, thus potentially confounding the chronic versus situational regulatory focus. It remains unknown how chronic regulatory focus and self-construal interact in response to framing the message with promotion or prevention reference-point. Kurman and colleagues (Kurman & Hui, 2011; Kurman & Hui, 2012; Kurman, Liem, Ivancovsky, Morio, & Lee, 2015) expanded these findings by making the distinction between vertical and horizontal self-construal. Their cross-cultural studies demonstrate that vertical collectivism and horizontal individualism are especially relevant to regulatory foci. Regulatory focus explained behavioral variances above and beyond the self construals, and mediated the relationship between self construals and behaviors (Kurman et al., 2015). Kurman et al. also provided empirical support to challenge the essentialist view of cultural dichotomies. Their findings suggest Hong Kong Chinese are oriented to both prevention and promotion regulatory focus (Kurman & Hui, 2011). This finding is consistent with prior cross-cultural research that did not measure cultural orientations. Higgins, Pierro, and Kruglanski (2009) compared gaps between chronic promotion and prevention orientations, and found the gap was lowest in stereotypically collectivist cultures of Japan, India, and China, and highest in the U.S. and Italy.

Taken together, research on self-construal and general regulatory focus reveal the explanatory power of regulatory focus as an individual difference construct in understanding cross-cultural behaviors. Meanwhile, more research is needed to deconstruct these complex phenomena (e.g., Kurman et al., 2011). One approach perhaps is to examine regulatory foci in the context of parenting, or PRF.

### **Parenting Style**

Research on parenting styles has long challenged the Eurocentric view on categorizing parenting behaviors into these three or four clusters and the implications of these parenting styles. Although the authoritative parenting styles are often considered to be associated with better child outcomes, decades of findings on outcomes of different parenting styles are not consistent across culture, ethnicity, and socioeconomic status (Spera, 2005). For example, in studies comparing across ethnic groups in the U.S., authoritative parenting is most strongly associated with academic achievement among White American youth, and is least effective in effecting the academic achievement among Asian and African American adolescents (e.g., Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Steinberg, Dornbusch, & Brown, 1992). These “paradoxical” findings have also been found in cross-nation studies (e.g., Chen, Liu, & Li, 2000; Leung, Lau, & Lam, 1998; Wu et al., 2002). For example, in Leung et al. (1998), academic achievement was found to be related to authoritativeness in U.S. and Australia but not in Hong Kong. In a longitudinal study in China, parental and maternal parenting styles were also found to differentially predict unique adjustment outcomes, such that maternal

warmth predicted emotional adjustment, whereas paternal warmth predicted social and school achievements (Chen, Liu, & Li, 2000).

Darling and Steinberg (1993) called for the “distinction between parenting styles and parenting practices” to explain such variability. In other words, the question posed is whether the goals toward which authoritative parents try to socialize their children are the same in African- and European- American homes? Alternatively, perhaps the goals African- and European- American authoritative parents hold are the same, but the methods they use to help children attain these goals differ” (Darling & Steinberg, 1993, p. 487). In this argument, Darling and Steinberg (1993) have described parenting styles as a reflection of “goals” or “motivations”, however, measures on parenting styles (i.e., PSDQ, CBPR) have heavily relied on parenting practices, thus blurring the lines of parenting styles and practices. Therefore, the development of parenting regulatory focus scale can potentially provide a critical instrument to understand these group differences by drawing a distinction between parenting motivations and methods/behaviors.

In reviewing the inconsistencies in the measurement on parenting styles across western and non-western countries, Stewart and Bond (2002) further suggested researchers adopt *dimensions* rather than *typologies* in cross-cultural studies on parenting styles. This is due to the limitations of behavioral indicators of these parenting styles as they are situated in particular cultural contexts. For instance, the endorsement of the practice item “my parent offers to help me with my homework” taps into warmth or involvement in middle-class, White families in North America. However, in many Asian

families, where parents' educational levels are frequently below that of their adolescent offspring, this behavior may not tap into the same construct.

Besides the dimensions of responsiveness, demandingness, and autonomy grant reviewed earlier in this chapter, a Chinese indigenous concept of *guan*, or parent training, has received increasing attention (Chao, 1994; Chao, 2001). Training was demonstrated to be a culturally relevant construct and effective in explaining the paradoxical findings that Chinese immigrant children thrive under authoritarian parenting approach (Chao, 2001). Research findings on parenting styles through the lens of parent training have further been validated in Chinese populations (e.g., Wu et al., 2002). The concept of training can be similar to authoritarian parenting styles as both emphasizing a set of standards and control, yet training differs from authoritarianism due to “(1) the motivations or goal intentions behind each concept, and (2) the fact that the Chinese concepts include an important feature, that of a highly involved concern and care for children (Chao, 1994, p. 1113).” Here again highlights the need to study motivations rather than behaviors in disentangle the inconsistent findings in parenting styles across cultures.

Last but not least, another cautionary factor in cross-cultural research on parenting styles is to critically evaluate the culture-specific role of child temperament. Although the role of parenting styles has been examined in a bidirectional model with child temperament (e.g., Lee, Zhou, Eisenberg, & Wang, 2013), there is some evidence suggesting this relationship might vary depending on the cultural context. For instance, in

comparing child inhibition and parenting styles across China and Canada, it was found that whereas inhibition was related to mother's higher punishment orientation and lower acceptance and encouragement of achievement in Canadian families, this pattern was reversed in Chinese families (Chen, Hastings, Rubin, Chen, Cen, & Stewart, 1998).

### **Summary**

In this introduction chapter, the construct of parenting regulatory focus was proposed based upon the review of regulatory focus theory. Parenting regulatory focus, as a domain-specific construct, is theorized to be distinctive from the general regulatory focus. A theoretical model was then proposed that integrates and understands parenting regulatory focus vis-à-vis psychological constructs of personality traits, child temperament, parenting styles and child outcomes. The limitations of current research are also highlighted by reviewing the cross-cultural findings on general regulatory focus and parenting styles.

Research on parenting regulatory focus has important theoretical and clinical implications on understanding parenting styles and behaviors. It can also inform effective implementation of parent education programs. Despite the potential utility of identifying parent regulatory focus, there does not exist a measure of parenting regulatory focus for researchers or clinicians.

Therefore, the objective of current study was to develop and cross-culturally validate the Parenting Regulatory Focus (PRF) Scale. Study 1 presented the construction and initial validation of PRF Scale in a U.S. convenient sample ( $N = 856$ ), which reduced

the items of PRF from 31 to 16 and confirmed the two-factor structure via CFA. In Study 2, a two-step tiered MTurk sampling was used to validate the PRF Scale with a more diverse parent sample ( $N = 497$ ) by establishing its internal and test-retest reliability, two-factor structure, and construct validity. In Study 3, the psychometric properties of the translated PRF scale were first demonstrated in a Chinese parent sample ( $N = 356$ ). By pooling the U.S. (Study 2) and Chinese samples (Study 3), measurement invariance was tested using multi-group confirmatory factor analysis between countries.



## CHAPTER 2: SCALE CONSTRUCTION AND INITIAL VALIDATION (STUDY 1)

### **Study Purpose**

The objective of the first study was to develop the Parenting Regulatory Focus (PRF) Scale and assess the initial psychometric properties of PRF Scale based upon Classical Test Theory (CTT). It was hypothesized that PRF Scale would yield a two-factor structure (i.e., promotion-oriented vs. prevention-oriented parenting regulatory focus) through factor analyses, as well as adequate internal reliability and validity (i.e., construct, predictive, and incremental validity).

### **Operationalization and Scale Construction**

The construction of PRF Scale was based upon clustering and rational methods. Reliability and validity rely upon the characteristics of the items, thus items must be carefully determined during the scale construction (Anastasi & Urbina, 1997). Anastasi and Urbina (1997) described three approaches in scale construction: rational, clustering, and criterion-keying methods. The rational method involves gathering items in accordance with a theory or rationale, thus is not an empirical method of item construction. Clustering methods involves a statistical technique, such as factor analysis, that determines factors or dimensions underlying a group of items. Empirical keying method is a data driven approach to determine whether items could distinguish between groups of individuals based on external criterion. Due to the theoretical delineation of two dimensions of parenting regulatory focus, it was most appropriate to use a combination of clustering and rational methods to construct the scale.

A pool of items was created by a group of scholars with expertise in psychology, family social science, and parent education. These experts were presented with the parenting regulatory focus theories and asked to write items that reflect either the reference-point or the self-guide definition for parenting regulatory focus (Figure 3). Specifically, self-guide definition refers to the parenting regulatory focus that is based on either parenting desires and ideals (independence, confidence) vs. parenting obligations or duties (responsible, being safe); whereas reference-point definition refers to the parenting regulatory focus that emphasizes the end-state or outcome of the goal-directed parenting behavior (e.g., eager to pursue dreams or vigilant to avoid danger). With this operationalization, promotion-based parenting regulatory focus emphasizes advancement, achievement, and growth; eagerness is used to strive towards achieving desired outcomes; children are appraised in terms of hopes and aspirations; interactions with children focus on encouraging engagement in new opportunities and providing feedback about whether or not child's actions are consistent with parent's ideal vision for how to achieve desired outcomes (this includes creating opportunities for the child to experience the desired outcome). Prevention-based parenting regulatory focus emphasizes safety, responsibility, and security; vigilance is used to avoid loss of desired outcomes and ensure that a state of non-loss is maintained; interactions with children focus on alerting children to potential threats to desired outcomes and providing feedback about whether or not the child's actions are consistent with the parent's expectations for what the child

ought to do (this includes creating opportunities for the child to experience the loss of desired outcome).

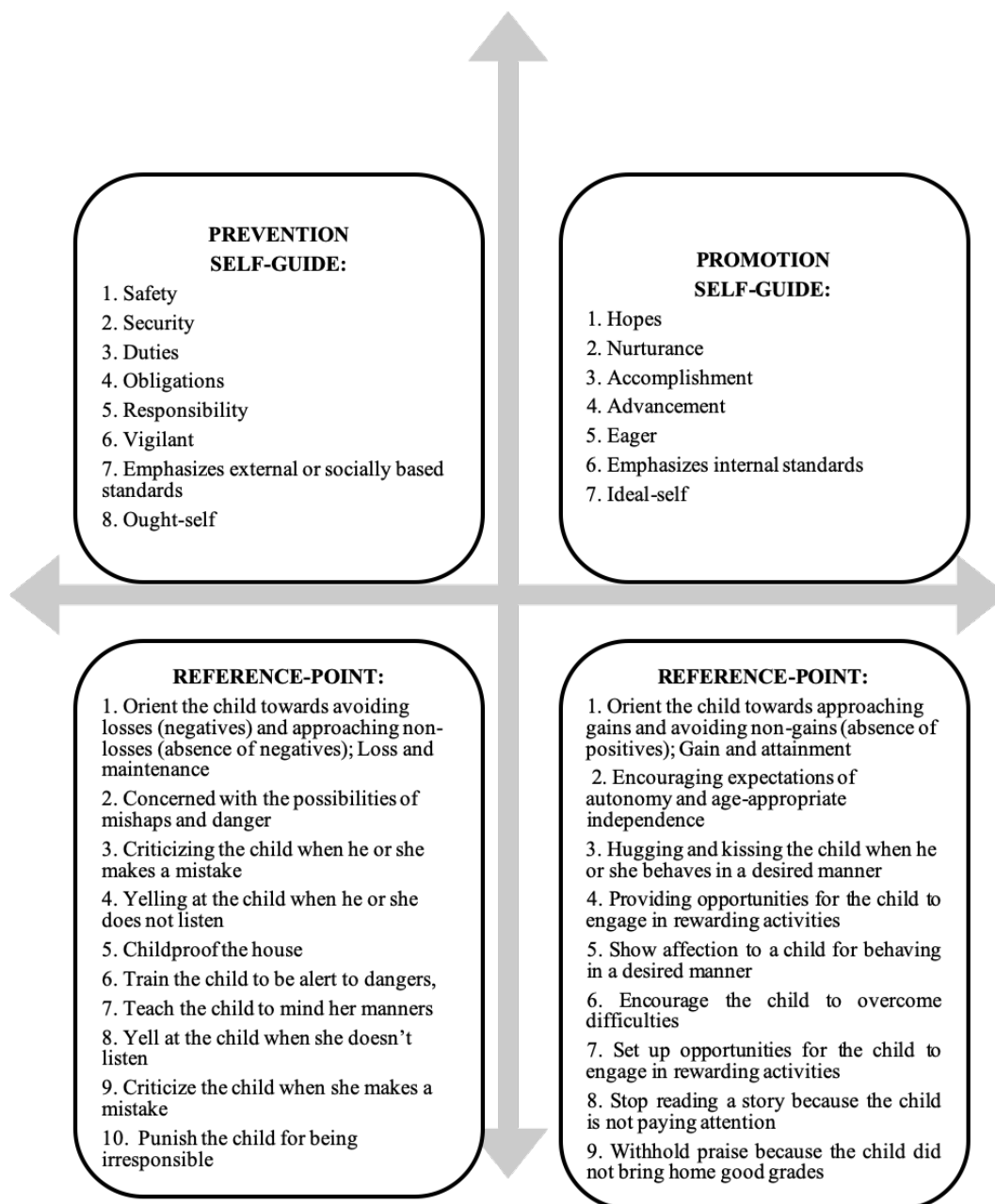


Figure 3. Operationalization of parenting regulatory focus.

A pool of forty-nine items was initially generated during this phase. The items were more in alignment with a self-guide definition. Initial items created based upon the reference-point definition were more behavioral based (e.g., hugging and kissing the child when he or she behaves in a desired manner) rather than reflecting parenting motivation and, as such, were not retained. A pilot sample ( $N = 58$ ) was collected from parents via a social media platform. An initial exploratory factor analysis (EFA), with two-factor solution, oblimin rotation, and principal axis extraction, was conducted. The results from this initial EFA suggested that 18 items had double loadings or low loadings. A 31-item scale (see Appendix) was finalized at this stage of scale construction.

### **Initial Scale Validation**

#### **Methods**

**Subjects.** Eight hundred and seventy-eight participants were recruited at the 2016 Minnesota State Fair. The inclusion criterion was any parent/caregiver who had at least one child between the ages of 3 to 25 years old. Participants filled out the survey in the University of Minnesota building at the fairground, and they were provided a draw-string backpack as the incentive for their participation. Six surveys with less than 2% responses were excluded, and 17 participants were excluded because the age of child did not meet the inclusion criteria. Therefore, 856 participants were included for the current study. The majority of these participants ( $N = 704$ ) filled out the survey via Qualtrics on an iPad, while the rest of the participants ( $N = 152$ ) filled a hardcopy version of the survey.

The average age of the 856 participants was 47.44 (SD = 8.22) years old, and the majority of the subjects were female (69%). The sample consisted of 90.6% White, 4.3% Asian, 2.4% Multiracial, and other races (<1%). The racial breakdown approximates the racial demographics in Minnesota except for African American, which comprises 6.0% of the state population (U.S. Census Bureau, 2015). The majority of the subjects (63.4%) had obtained a college degree or higher, and 56.4% of the respondents had an annual household income above \$100,000.

### **Measures.**

***Parenting Regulatory Focus.*** Parenting Regulatory Focus (PRF) Scale is a 31-item self-report measure developed for this study (See Appendix). The PRF Scale includes a promotion-based and a prevention-oriented. The PRF Scale is rated on a 6-point Likert-type scale from 1 (= strongly disagree) to 6 (= strong agree) for a specific target child within the age of 3 to 25 that the parent is the primary caregiver. The instruction for PRF Scale is “as you think about your goals for [your child], please rate the extent to which you agree with the following statements, it is important for [your child] to...” One sample item for prevention orientation is “to be safe rather than sorry,” and one sample item for promotion orientation is “to take risks so that he or she could be the best.”

***Regulatory Focus.*** Chronic regulatory focus was assessed by Regulatory Focus Questionnaire (RFQ; Higgins et al., 2001). RFQ is an 11-item 5-point Likert-type measure with two subscales (See Appendix). The promotion regulatory focus subscale

has 6 items; sample items include “compared to most people, are you typically unable to get what you want out of life?” The prevention regulatory focus subscale has 5 items: sample items include “growing up, would you ever ‘cross the line’ by doing things that your parents would not tolerate?” Higgins et al. (2001) demonstrated good internal consistencies of promotion ( $\alpha = .73$ ) and prevention regulatory focus subscales ( $\alpha = .80$ ) with no correlations between the two subscales in college student samples. In the full sample of the current study, Cronbach’s  $\alpha = .56$  for promotion regulatory focus subscale scores, and  $\alpha = .81$  for prevention regulatory focus subscale scores.

***Parenting Styles.*** Three subfactors from the Parent Style & Dimensions Questionnaire - Short Version (PSDQ; Robinson et al., 2001) assessed participants’ self-reported parenting styles. The items were rated on a 1 (= Never) to 5 (= Always) Likert-type scale on how often parents exhibit certain parenting behaviors (See Appendix). The Autonomy Granting Dimension (Democratic Participation) has 5 items; sample items include “allows child to give input into family rules.” The Regulation Dimension (Reasoning/Induction) has 5 items; sample items include “gives child reasons why rules should be obeyed.” The Non-reasoning/Punitive Dimension has four items; sample items include “Uses threats as punishment with little or no justification.” The autonomy granting dimension and regulation dimension are subfactors from the authoritative parenting style factor ( $\alpha = .86$ ; Robinson et al., 2001), and the non-reasoning/punitive dimension is a subfactor under the authoritarian parenting style factor ( $\alpha = .82$ ; Robinson

et al., 2001). The Cronbach's alphas for the three subfactors scores are .83 for autonomy granting, .77 for regulation, and .84 for non-reasoning dimensions respectively.

***Parenting Vignettes.*** Participants read two parenting vignettes (one about jaywalking, the other about going to college). For each vignette, parents were asked to choose either the promotion or prevention-oriented response in responding to that situation.

In Vignette 1, under the scenario where “as a parent of a child, if you don't want your child to jaywalk (illegally cross the street)”, parents were asked “which way would you prefer to talk to your child,” with either promotion-oriented choice “You might get hurt and then not be able to play the rest of the summer ( $n = 251$ )” or the prevention-oriented choice “You might get hurt and get a ticket for breaking the law ( $n = 393$ ).”

In Vignette 2, under the scenario where “you want your child to go to a good college and to be successful in the future”, parents were asked “which way would you prefer to talk to your child,” with either promotion-oriented choice “going to college will be a great opportunity for you to grow. You will be able to try new things and take some risks to pursue your dream ( $n = 503$ )” or the prevention-oriented choice “going to college will be an important step toward your future security. You will need to do what is expected and learn to become responsible ( $n = 139$ ).” In both vignettes, a prevention-oriented choice was coded as 0, and a promotion-oriented choice was coded as 1.

## Results

**Factor Analysis.** The sample was randomly divided into Subsample 1 of approximately 25% cases ( $N = 233$ ) and Subsample 2 of 75% cases ( $N = 623$ ). In Subsample 1, Exploratory Factor Analysis (EFA) with 1, 2, 3, and 4-factor solutions were conducted respectively. The 233 observations in the Subsample 1 for EFA provided a ratio of 7.52 cases per item, thus fulfilling a minimum requirement of 5 cases per item for factor analysis (Stevens, 1996). The number of factors was selected based on the theory of PRF, the scree plot (Figure 4), and total variances explained. The one-factor solution explained 45.20% of the total variance, adding the second, third and fourth factor explained another 13.00%, 5.02%, and 4.04% of the total variances respectively. In combination with the scree plot, the two-factor solution was selected for further analysis. In the two-factor solution via EFA with oblimin rotation and principal axis extraction (Table 1), item 18 and 21 were deleted due to poor and/or double loadings.

Table 1. Exploratory factor analysis pattern coefficients for PRF items

Items (Eigenvalue)	Promotion (13.27)	Prevention (4.16)
4. To be willing to take chances	.874	-.157
3. To do challenging things even if it leads to failure	.861	-.140
2. To pursue what he/she wants in life	.855	.002
6. To have the self-confidence to do anything	.850	-.080
1. To try out new activities	.841	-.094
11. To try doing things on his/her own in order to learn	.840	-.040
7. To follow his/her dream	.810	-.004
12. To solve problems by being creative	.792	-.001
19. To become whatever he/she wants to be	.791	.081
10. To know that it is better to try and fail, than not to try at all	.769	.009
15. To learn to be accountable	.724	.112
20. To push his/her limits	.699	-.038



8. To do what he/she wants in life	.686	.107
26. To experience many positive opportunities	.637	.214
23. To have fun in life	.620	.159
14. To be himself/herself without worrying what others think	.555	.108
17. To take risks so that he/she can be the best	.486	.086
21. To take chances when playing games or sports	.293	.044
31. To always follow the rules	-.088	.829
30. To be careful and cautious	-.043	.821
27. To avoid getting into trouble	-.042	.814
28. To avoid risky situations	-.075	.806
22. To avoid doing things that may lead to trouble	-.006	.720
25. To always follow instructions in order to learn	-.006	.718
29. To think about his/her safety first	.161	.697
24. To behave well in order to succeed	.178	.685
13. To know that if he/she is not careful he/she will get hurt	-.029	.629
16. To do what I expect from him	.100	.522
18. To know right from wrong to stay safe	.346	.508
9. To play it safe when playing games or sports	-.004	.503
5. To be safe rather than sorry	.054	.465

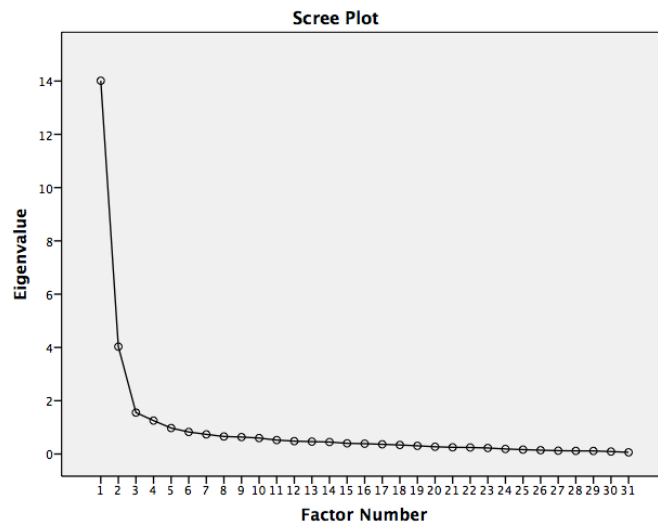


Figure 4. Scree plot for the number of factors of PRF

In Subsample 2, based upon the prior factor structure, a confirmatory factor analysis (CFA) model was fitted to further limit the number of scale items. In the final model (Figure 5), eight items were selected for each subscale based upon both PRF theory and modification indices (i.e., dropping items that may most likely increase the model fit) in the CFA model. Promotion- and prevention-oriented parenting regulatory foci were positively correlated ( $r = .37, p < .001$ ). RMSEA=.073, CFI=.942, SRMR=.064, which indicated adequate model fit (Hu & Bentler, 1999). Subsequent analyses were based upon Subsample 2.

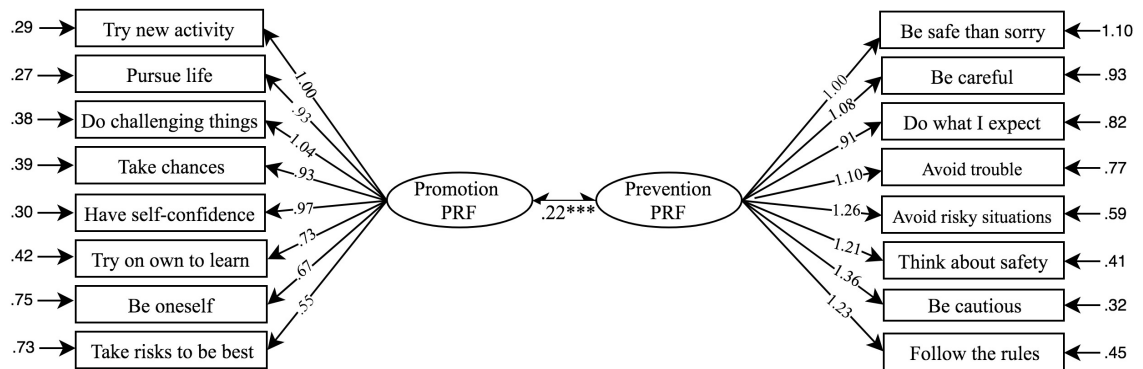


Figure 5. Factor Structure of PRF Scale

**Reliability.** To evaluate the reliability of PRF, Cronbach's alphas were calculated for the promotion subscale ( $\alpha = .91$ ) and prevention Subscale ( $\alpha = .90$ ), indicating high internal consistencies of the two PRF subscale scores.

**Normative Information.** The means and standard deviations were as follows for promotion ( $M = 5.22, SD = .83$ ) and prevention ( $M = 4.79, SD = .89$ ) PRF subscales. In addition, the skewness and kurtosis indices were computed. The skewness indexes were negative (-.21 for promotion and -.66 for prevention), suggesting that the data was left-

skewed. The kurtosis indexes were  $-.37$  for promotion, suggesting the data was flattened (platykurtic) compared to a normal distribution; and  $1.33$  for prevention PRF subscales, suggesting the data was peaked (leptokurtic) compared to a normal distribution. Applying the rule of thumb (dividing each value by its standard error within  $\pm 1.96$  limits) as well as Shapiro-Wilk test ( $ps < .001$ ), the assumption of normality was violated.

**Validity.** Table 2 presented the point-biserial of two PRF subscales with general regulatory focus subscales (RFQ), parenting styles and dimension subscales (PSDQ), as well as two parenting vignettes. The magnitude of correlation coefficients between PRF and RFQ subscales suggested convergent validity of PRF in differing from the classic notion of a general regulatory foci system.

In addition, three sets of hierarchical regressions were performed using PSDQ subscales as outcome variables to explore PRF's *incremental validity* (Table 3). In Step 1, promotion and prevention RFQ scores were entered. In Step 2, promotion and prevention PRF scores were further added. It was found that PRF subscales could predict parenting styles of autonomy ( $\Delta F = 15.55, p < .001$ ), regulation ( $\Delta F = 43.92, p < .001$ ), and punitive dimension ( $\Delta F = 18.87, p < .001$ ) above and beyond RFQ.

Table 2. Means, standard deviations, and point-biserial correlations

	2	3	4	5	6	7
1.Promotion PRF	.36**	.25**	.09*	.13**	.21**	-.24**
2.Prevention PRF	1	.03	.13**	.16**	.30**	.01
3.Promotion RFQ		1	.19**	.09*	.13**	-.37**
4.Prevention RFQ			1	.03	.08	-.15**
5.Autonomy				1	.46**	.02
6.Regulation					1	-.02
7.Punitive						1

Mean	3.91	3.61	3.84	4.11	1.94
SD	.50	.58	.62	.61	.85

Table 3. Hierarchical regressions on three dimensions of PSDQ

Autonomy	B	S.E.	sr <sup>2</sup>	R <sup>2</sup>	ΔR <sup>2</sup>	F	ΔF
Step 1				.01		2.37	
Promotion RFQ	.10*	.05	.01				
Prevention RFQ	.01	.04	<.01				
Step 2				.04	.03	5.84***	9.25***
Promotion RFQ	.08	.05	<.01				
Prevention RFQ	-.01	.04	<.01				
Promotion PRF	.05	.03	<.01				
Prevention PRF	.09**	.03	.02				
Regulation	B	S.E.	sr <sup>2</sup>	R <sup>2</sup>	ΔR <sup>2</sup>	F	ΔF
Step 1				.02		6.30**	
Promotion RFQ	.15**	.05	.01				
Prevention RFQ	.06	.04	<.01				
Step 2				.11	.09	19.96***	32.99***
Promotion RFQ	.12*	.05	.01				
Prevention RFQ	.01	.04	<.01				
Promotion PRF	.06*	.03	.01				
Prevention PRF	.18***	.03	.06				
Punitive	B	S.E.	sr <sup>2</sup>	R <sup>2</sup>	ΔR <sup>2</sup>	F	ΔF
Step 1				.02		53.88***	
Promotion RFQ	-.61***	.06	.12				
Prevention RFQ	-.12*	.05	.01				
Step 2				.11	.09	33.53***	11.42***
Promotion RFQ	-.53***	.07	.09				
Prevention RFQ	-.13*	.06	.01				
Promotion PRF	-.19***	.04	.03				
Prevention PRF	.09*	.04	.01				

Lastly, for *concurrent validity*, promotion and prevention PRFs were fit into two logistic regression models to predict participants' choices in each parenting vignette.

Each logistic regression model was run on all age groups first. In addition, each logistic regression model was run separately on three age groups: 3 to 9 ( $n = 100$ ), 10 to 17 ( $n = 282$ ), and 18 to 25 ( $n = 245$ ) years old.

For Vignette 1 on jaywalking, as indicated in Table 4, the logistic regression model was significant for the all participants ( $\chi^2 = 17.25, p < .001$ , Nagelkerke  $R^2 = .04$ ). As hypothesized, with one unit increase in prevention PRF, the odds ratio was .33 lower to choose a promotion message framing over a prevention message framing. When broken down into three age groups, the model was significant for 10-to-17 ( $\chi^2 = 6.80, p < .05$ , Nagelkerke  $R^2 = .03$ ) and 18-to-25 age group ( $\chi^2 = 13.95, p < .001$ , Nagelkerke  $R^2 = .08$ ), but not for 3-to-9 age group. The overall variances explained in these models, indicated by Nagelkerke  $R^2$ , were relatively low (3% to 8%).

For Vignette 2 on college, the logistic regression model was significant for the all participants ( $\chi^2 = 13.20, p < .01$ , Nagelkerke  $R^2 = .03$ ). As hypothesized, with one unit increase in promotion PRF, the odds ratio was .28 higher to choose to choose a promotion message framing over a prevention message framing; whereas with one unit increase in prevention PRF, the odds ratio was .35 lower to choose a promotion message framing over a prevention message framing. When broken down into three age groups, the model was significant for 3-to-9 ( $\chi^2 = 6.61, p < .05$ , Nagelkerke  $R^2 = .11$ ) and 10-to-17 ( $\chi^2 = 8.80, p < .05$ , Nagelkerke  $R^2 = .05$ ), but not for 18-to-25 age group. The overall variances explained in these models, indicated by Nagelkerke  $R^2$ , were relatively low (3% to 11%).

Table 4. Logistic regressions on parenting vignettes by child age group

	Vignette 1				Vignette 2			
	B	OR	$\chi^2$	R <sup>2</sup>	B	OR	$\chi^2$	R <sup>2</sup>
All age ( <i>n</i> = 650)			17.25***	.04			13.20**	.03
Promotion PRF	.13	1.14			.25	1.28*		
Prevention PRF	-.41	.67***			-.44	.65**		
3 to 9 ( <i>n</i> = 100)			1.94	.03			6.61*	.11
Promotion PRF	.43	1.54			1.03	2.80*		
Prevention PRF	-.17	.85			-1.00	.37*		
10 to 17 ( <i>n</i> = 282)			6.80*	.03			8.80*	.05
Promotion PRF	-.16	.85			.04	1.04		
Prevention PRF	-.30	.74*			-.51	.60**		
18 to 25 ( <i>n</i> = 245)			13.95**	.08			4.04	.03
Promotion PRF	.35	1.42			.36	1.44		
Prevention PRF	-.60	.55***			-.35	.70		

## Discussion

This study proposed a new measure on parenting regulatory focus that assesses parents' motivations in raising their children. PRF scale was theorized to measure two interrelated parenting regulatory focus dimensions. Using a large convenience sample, I first used EFA in 25% of the sample to extract the most stable, two-factor solution. I then used CFA to further validate the two-factor structure and reduce the scale items in 75% of the sample. I demonstrated adequate reliability and validity of the final, 16-item PRF scale. Specifically, parenting regulatory focus, as a domain specific regulatory focus, indicated similarities with the self-regulatory focus (Higgins et al., 2001) for its convergent validity. The magnitude of the correlations coefficients between PRF and RFQ subscales also supported the validity of PRF as measuring a unique construct.

In terms of its construct validity with parenting styles. Parenting regulatory focus, theorized to be a more proximal precedent to parenting behaviors than self-regulatory focus, demonstrated incremental validity by predicting parenting styles and behaviors above and beyond self-regulatory focus. It is notable that the amount of variance accounted by PRF is more than RFQ in all models. It is also worth highlighting that previous research has argued that one's self-regulatory focus is influenced by early parenting styles (Keller, 2008). Prevention regulatory focus was found to positively correlated with parents who raised them in an authoritarian parenting style, and promotion regulatory focus was positively correlated with parents who raised them in an authoritative parenting style (Keller, 2008). In the current study, I measured self-regulatory focus and how participants are raising their children, rather than how they were raised. Although our approach methodologically (and conceptually) differs from Keller (2008), autonomy granting and regulation dimensions, which are in alignment with authoritative parenting, were positively correlated with promotion self-regulatory focus; punitive dimension, which is in alignment with authoritarian parenting, was positively correlated with prevention self-regulatory focus and negatively correlated with the promotion self-regulatory focus. In contrast, such patterns of results did not replicate between parenting styles and parenting regulatory focus, further corroborating parenting regulatory focus as a distinct domain-specific construct.

Lastly, PRF scale indicated concurrent validity by predicting choices in parenting vignettes. The prevention dimension appears to be a stronger predictor of the parenting

choices compared to the promotion dimensions across age groups. In predicting parenting styles though (Table 3), the squared semi-partial  $r$  squared ( $sr^2$ ) indicated the unique contribution of promotion or prevention PRF vary across each parenting styles and behaviors dimension. Thus, the two dimensions of PRF may serve distinct functions in understanding parenting behaviors.

Several limitations should be noted in this first study on initial scale validation. First, the current sample was collected from a large state-sponsored event; the participants were highly educated, predominantly White, with high socioeconomic status. Generalizing the findings beyond this sample population should be approached with caution. Second, although the factor structure was demonstrated through EFA and CFA respectively in two split samples, another independent, a more diverse sample is warranted for further validation of the factor structure of PRF. Lastly, in this initial scale construction and validation study, only measures of self-regulatory focus and parenting styles were included for construct validity. To fully understand the construct of PRF, it would benefit from empirical validation with individual differences measures including personality traits and child outcomes.



## CHAPTER 3: SCALE REVALIDATION (STUDY 2)

### **Study Purpose**

The objective of the Study 2 was to further validate the PRF Scale in an independent U.S. sample. The specific aims were 1) to examine if the factor structure from Study 1 would still hold in a more ethnically and racially diverse U.S. parents sample; and 2) to provide additional psychometrics information about two-week test-retest reliability and the construct validity of PRF with regards to personality traits, child temperament, child outcomes, in addition to parenting styles and behaviors, and general regulatory focus (from Study 1).

It was hypothesized the PRF Scale would demonstrate a two-factor structure through CFA, high internal consistency, as well as two-week test-rest reliability. I predicted the PRF would be low to moderately related to general regulatory focus and personality traits, yet would be better at predicting parenting behaviors than general regulatory focus (i.e., incremental validity). For construct validity, it was further hypothesized promotion and prevention PRF would be correlated with independent and interdependent self-construal respectively. I also predicted that promotion and prevention PRF would be correlated to surgency and control child temperament respectively as well. Lastly, it was hypothesized that promotion and prevention PRF would not differentially predict better child outcome. For concurrent validity, I further hypothesized promotion and prevention PRF would predict parent's choices in a series of parenting vignettes.

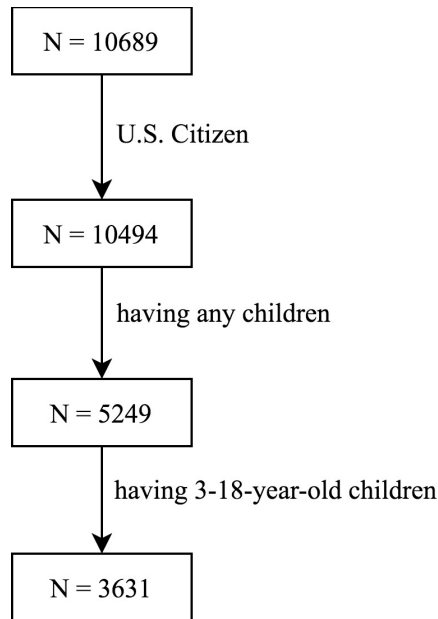
## Methods

### Procedure

Participants were recruited from Amazon Mechanical Turk (MTurk) during Sept 2017 to March 2018. Prior research suggests respondents through MTurk are more representative of the U.S. population than in-person convenience samples (Berinsky, Huber & Lenz, 2012). I followed Huff and Tingley's (2015) two-stage sampling procedure to create a racially diverse sample of father and mothers. First, I created a pool of participants by publishing a Human Intelligence Task (HIT) the oversamples respondents and ask a small battery of questions. Then I used this pool to re-contact respondents based upon their race and gender using the open-source R package MTurkR (Leeper, 2015).

The initial HIT was advertised on MTurk platform as containing only four questions, less than one minute, for one cent as compensation. The HIT was only visible to MTurk workers with U.S. Internet Protocol locations. As illustrated in Figure 6, 10,689 MTurk workers responded to the HIT. One-hundred and ninety-five respondents were excluded due to their responses for not having U.S. citizenship, and 5,245 respondents were further excluded due to their responses for not having any children. Among the 5,245 parents, 3,631 (34.60 % of the 10,494) reported having at least one child between the age of 3 to 18 years old. According to the U.S. Census Bureau (2016), an estimated 25.19 % (= 64,891 / 257,615) of U.S. populations older than 15 have any children under 18 years old (U.S. Census Bureau, 2016). The race and gender breakdown of this initial

pool was included in Table 4. Huff and Tingley (2015) suggested the racial breakdown of a large sample of MTurk respondents ( $N = 2706$ ) included 78.34% White, 6.65% Black, 4.84% Hispanic, and 6.28% Asian participants.



*Figure 6.* Flowchart for the two-stage sampling procedure

During the second stage, 517 participants from the initial pool were invited and completed the baseline survey. The baseline survey took about 20 minutes to finish and respondents were compensated \$2 upon successful completion of the survey. Responses were excluded for failing the attention check questions ( $N = 17$ ) or discrepant race and gender information between the initial and the baseline surveys ( $N = 3$ ). Therefore, a total of 497 were included for final analyses, with 84 Asian Americans (40% male), 97 Black or African Americans (42% male), 107 Latinx (51% male), 118 White or European Americans (47% male), 22 identifying as other races (16 Native American, 6 Arabic or

Muslim Americans), and 69 identifying as mixed or more than two race categories (23% male).

Table 5. A demographic breakdown of gender and race during the initial, baseline, and follow-up surveys

	Initial survey			Baseline survey			Follow-up survey		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Asian	58	64	122	34	50	84	13	11	24
Black	83	258	341	41	56	97	13	14	27
Latinx	86	111	197	55	52	107	13	12	25
White	819	1,904	2,726	56	62	118	13	12	25
Others	8	21	29	10	12	22	2	1	3
Mixed	51	126	177	16	53	69	6	4	10
Total	1,120	2,500	3,623	212	285	497	60	54	114

For the follow-up survey, two weeks upon the completion of the baseline survey, with planned missing design, roughly a quarter of participants from each race and gender group were re-contacted (see Table 5). The follow-up survey took about 5 minutes to finish and participants were compensated for 50 cents upon successful completion of the survey.

### Participants

Among the 497 participants included in our final analyses, the average age was 35.99 years old ( $SD = 7.55$ ), ranging from 20 to 65. Participants were from 45 U.S. States and Hawaii (excluding the states of Maine, New Hampshire, Vermont, Wyoming), with top states being California ( $n = 70$ , 14.1%), Texas ( $n = 49$ , 9.9%), Florida ( $n = 43$ , 8.7%). In contrast to the high SES indicators in the Study 1, the current sample included 231 participants who reported less than college level education or Bachelor's degree and 265

reported having college or above college level education. In addition, 80.2% (compared to 43.6% in Study 1) participants reported less than \$100,000 family income. The majority of participants are currently in a relationship ( $n = 415$ ), and 16 out of 383 (4.2%) reported they are in a same-sex relationship. And the majority of the participants were born in the U.S. ( $n = 434$ , 87.7%).

In terms of family composition, participants reported having one child ( $n = 147$ ; 29.7%), two ( $n = 213$ ; 43.0%), three ( $n = 77$ ; 15.6%), four ( $n = 42$ ; 8.5%), or more children ( $n = 16$ ; 3.2%). For the target child that participants identified for survey responses, the mean age was 8.57 years old ( $SD = 4.29$ ), with 50% boys ( $n = 263$ ) and girls ( $n = 262$ ). Participants reported to be biological parent ( $n = 461$ ; 92.8%), adoptive parent ( $n = 10$ ), stepparent ( $n = 22$ ), or parent's partner living in the same household ( $n = 4$ ). Forty-six target children were reported to have physical or mental disabilities, mostly on the autism spectrum or attention deficit hyperactive disorder (ADHD).

## Measures

**Parenting regulatory focus.** The 16-item version of the PRF Scale (see Appendix), established upon Study 1, was administered both at the baseline and the two-week follow-up survey.

**General regulatory focus.** Chronic regulatory focus was assessed by the General Regulatory Focus Measure (GRFM; Lockwood et al., 2002) at the baseline survey. GRFM focused on the self-guide definition, whereas RFQ focused on the reference-point definition of regulatory focus. GRFM is an 18-item 1 (= not at all true of me) to 9 (= very

true of me) Likert-type scale with two subscales (see Appendix). The items were changed from “academic” to “academic or career” to describe experiences more relevant to adult populations. The promotion regulatory focus subscale includes nine items; sample items include “I often think about how I will achieve academic or career success.” The prevention regulatory focus subscale has 9 items; sample items include “I am more oriented toward preventing losses than I am toward achieving gains.” Lockwood et al. (2002) demonstrated good internal consistency of promotion ( $\alpha = .81$ ) and prevention regulatory focus subscales ( $\alpha = .75$ ) with  $r = .17$  correlation between the two subscales in college student sample. In the current study, Cronbach’s  $\alpha = .90$  for promotion regulatory focus subscale score, and  $\alpha = .85$  for prevention regulatory focus subscale score, with  $r = .18$  ( $p < .01$ ) between the two subscales.

**Child Temperament.** Child temperament was assessed by the very-short-form Children’s Behavior Questionnaire (CBQ; Putnam & Rothbart, 2006) at the baseline survey. The 36-item very-short-form CBQ was developed based upon the original 195-item CBQ (Rothbart, Ahadi, & Hershey, 1994; Rothbart, Ahadi, Hershey, & Fisher, 2001), a well-established caregiver report measure of temperament for children aged 3 to 8 years. Two subscales from the very-short-form CBQ were administered to respondents whose target child was between 3 to 8 years old as the cut-off age range ( $N = 238$ ). Parents were asked to evaluate descriptions of the target child in the past six months on a 1 (= extremely untrue of your child) to 7 (= extremely true of your child) Likert-type scale including a choice for “not applicable”. The surgency or extraversion subscale,

characterized by high positive loadings on the impulsivity, high intensity pleasure, activity level, and low on shyness, includes 12 items; sample items include “seems always in a big hurry to get from one place to another.” The effortful control subscale, characterized by conscientiousness, inhibitory control, attentional control, low intensity pleasure, and perceptual sensitivity, includes 12 items; sample items include “enjoys gentle rhythmic activities, such as rocking or swaying.” Putnam and Rothbart (2002) demonstrated satisfactory internal consistency, criterion validity, factory structure, longitudinal stability, and cross informant agreement compared to the standard CBQ in mid/high-income and White samples. However, the internal consistency was somewhat lower for African American and low-income samples. Surgency ( $\alpha = .70$  to  $.76$ ) and effortful control ( $\alpha = .62$  to  $.78$ ) were negatively correlated ( $r = -.10$  to  $-.19$ ). In the current study, Cronbach’s  $\alpha = .81$  for surgency subscale score, and  $\alpha = .83$  for effortful control subscale score, with no significant correlation ( $r = .01, p > .05$ ) between the two subscales.

**Parenting Styles.** Five subfactors – warmth/acceptance, physical coercion, non-reasoning/punitive, shaming/love withdrawal, and protection – were administered at the baseline survey to assess unique dimensions of parenting styles. Items on the warmth, physical coercion, and non-reasoning dimensions are from the PSDQ – Short Version (Robinson et al., 2001) and items on shaming and protection are from Wu et al. (2002). The items are rated on a 1 (= Never) to 5 (= Always) Likert-type scale on how often parents exhibit certain parenting behaviors (See Appendix). The warmth/acceptance

dimension has 7 items ( $\alpha = .83$ ); sample items include “gives praises when child is good.” The physical coercion dimension has 5 items ( $\alpha = .82$ ); sample items include “spanks when child is disobedient.” The non-reasoning/punitive dimension has 3 items ( $\alpha = .66$ ); sample items include “punishes by taking privileges away from child with little if any explanation.” The shaming/love withdrawal dimension has 4 items ( $\alpha = .78$ ); sample items include “tell child that he/she should be ashamed when he/she misbehaves.” The protection dimension has 3 items ( $\alpha = .63$ ); sample items include “overly worry about child getting hurt.” Robinson et al. (2001) and Wu et al. (2002) have demonstrated the sub-factor structures and reliabilities of these dimensions.

**Self-Construal.** The 24-item Self Construal Scale (SCS; Singelis, 1994) was administered at the baseline survey to assess the interdependent (12 items) and independent (12 items) self-construal of the participants. The SCS was developed based upon Markus and Kitayama’s (1991) conceptualization of cultural differences in the self. The items are rated on a 1 (= Strongly Disagree) to 7 (= Strongly Agree) Likert-type scale. Sample items include “I have respect for authority figures with whom I interact” (Interdependent Self-Construal Subscale) and “I act the same way no matter who I am with” (Independent Self-Construal Subscale). The reliabilities of the Interdependent and the Independent Self-Construal Subscale scores were .73 and .69 respectively (Singelis, 1994). In the current study, Cronbach’s  $\alpha = .76$  for the interdependent self-construal subscale score, and  $\alpha = .77$  for independent self-construal subscale score, with  $r = .27$  ( $p < .01$ ) between the two subscales.



**Child Outcome.** Strengthen and Difficulties Questionnaire (SDQ; Goodman, 2001) was administered at the baseline survey to assess children's hyperactivity, emotional symptoms, conduct problems, peer problems, and prosocial behaviors. The 25-item SDQ includes 5 scales of 5 items each. Each item has three possible choices, *Not True*, *Somewhat True*, or *Certainly True*. Subscale scores can be computed by summing scores on relevant items, ranging from 0 to 10. Higher scores on prosocial behavior subscale ( $\alpha = .78$ ) reflect strengths, whereas higher scores on the other four subscales – hyperactivity ( $\alpha = .77$ ), emotional symptoms ( $\alpha = .73$ ), conduct problems ( $\alpha = .64$ ), peer problems ( $\alpha = .57$ ) – reflected difficulties. Goodman (2001) reported satisfactory internal consistency and two-week test-retest reliability. The SDQ has also demonstrated adequate reliability and validity across multiple cultural groups (Achenbach et al., 2008).

**Personality Traits.** The 44-item Big Five Inventory (BFI; John & Srivastava, 1999) was administered in the follow-up survey to assess the personality traits of openness (10 items), extraversion (8 items), agreeableness (9 items), conscientiousness (9 items), and neuroticism (8 items). Items of personal characteristics are rated on 1 (=disagree strongly) to 5 (=agree strongly) Likert-type scale. Alpha reliabilities and test-retest reliabilities for the five subscales range from .80 to .90 (John & Srivastava, 1999). In the current study, Cronbach's  $\alpha$ s = .75, .89, .88, .85, and .89 for openness, extraversion, agreeableness, conscientiousness, and neuroticism scale scores respectively, and correlations among the subscales are in the expected directions.

**Parenting Vignettes.** Participants read four parenting vignettes (see Appendix).

In Vignette 1, similar to Study 1, under the scenario where “you want your child to go to a good college and to be successful in the future”, parents were asked “which way would you prefer to talk to your child”, with either promotion-oriented choice “going to college will be a great opportunity for you to grow. You will be able to try new things and take some risks to pursue your dream ( $n = 251$ )” or the prevention-oriented choice “going to college will be an important step toward your future security. You will need to do what is expected and learn to become responsible ( $n = 86$ ).” In this vignettes, a prevention-oriented choice was code as 0, and a promotion-oriented choice was coded as 1.

For Vignettes 2 to 4, participants were randomized to receive either a promotion or a prevention condition. In Vignette 2, parents were asked to imagine “your child is a picky eater,” and they wanted to “encourage him or her to eat more vegetables.” Under the promotion condition ( $n = 178$ ), parents were asked to respond to how likely they are going to tell their child “when you eat vegetables, you will grow tall and strong ( $M = 5.11$ ,  $SD = 1.02$ ).” Under the prevention condition ( $n = 177$ ), parents were asked to respond to how likely they are going to tell their child “when you don’t eat vegetables, you will not grow tall and get sick ( $M = 4.77$ ,  $SD = 1.03$ ).”

In Vignette 3, parents were asked to imagine “your child scores 70 out of 100 on a quiz.” Under the promotion condition ( $n = 180$ ), parents were asked to respond to how likely they are going to “praise him or her for getting 70% correct ( $M = 3.52$ ,  $SD = 1.29$ ).” Under the prevention condition ( $n = 175$ ), parents were asked to respond to how

likely they are going to “talk to him or her about the 30% incorrect ( $M = 4.82$ ,  $SD = 1.09$ ).”

In Vignette 4, parents were asked to imagine “your child scores 90 out of 100 on a quiz.” Under the promotion condition ( $n = 170$ ), parents were asked to respond to how likely they are going to “praise him or her for getting 90% correct ( $M = 4.72$ ,  $SD = 1.08$ ).” Under the prevention condition ( $n = 185$ ), parents were asked to respond to how likely they are going to “talk to him or her about the 10% incorrect ( $M = 4.35$ ,  $SD = 1.19$ ).”

## Results

### Confirmatory Factor Analysis (CFA)

A CFA model was fitted to further examine the stability of the two-factor model. As indicated in Figure 7, Promotion and prevention based parenting regulatory foci were positively correlated ( $r = .23$ ,  $p < .001$ ), with RMSEA=.075, CFI=.912, SRMR=.067, which indicated adequate model fit (Hu & Bentler, 1999). Therefore, subsequent analyses were based upon the 16-item, 2-factor structure of PRF.

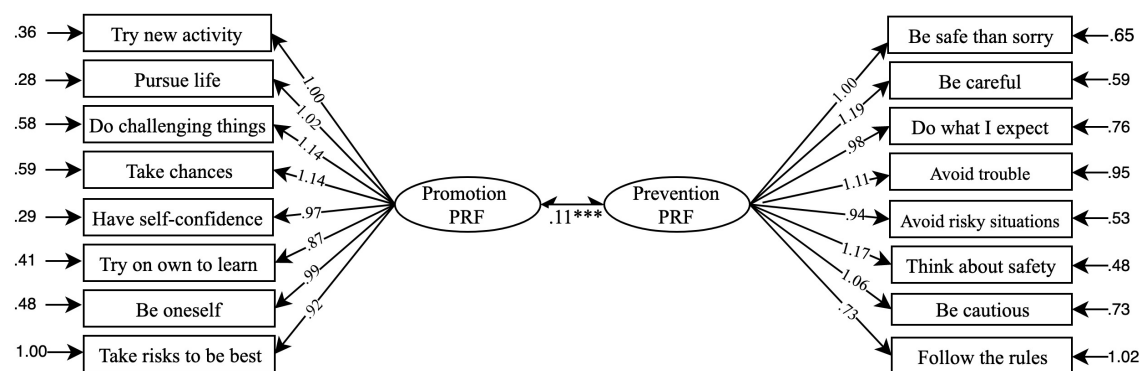


Figure 7. Factor Structure and loadings of PRF Scale

## Reliability

The two-week test-retest reliability is .65 for promotion PRF subscale, suggesting questionable reliability, and .77 for the prevention PRF subscales, suggesting acceptable reliability. Estimates of the internal consistencies for pre- and post- measures were measured by Cronbach's alphas, ranging from .84 to .90 (Table 6). These estimates of the reliability were similar to the ones found in Study 1, which suggests the two factors have acceptable levels of internal consistency in the current sample.

Table 6. Means, standard deviations, and reliabilities for PRF Scale

	Baseline		2-week Follow-up	
	Promotion PRF	Prevention PRF	Promotion PRF	Prevention PRF
$\alpha$	.86	.88	.84	.90
Mean	5.28	4.75	5.28	4.75
SD	.65	.87	.55	.86
Skewness (SE)	-1.19 (.11)	-.52 (.11)	-.83 (.23)	-.88 (.23)
Kurtosis (SE)	1.68 (.22)	-.07 (.22)	.71 (.45)	.62 (.45)

*Note.* SD = Standard Deviation, SE = Standard Error

## Normative Information

The means and standard deviations are presented in Table 7. These numbers are similar to previous findings in Study 1. In addition, the skewness and kurtosis indices were computed. The skewness indexes were negative, suggesting that the data was left-skewed; the kurtosis indexes were mostly positive, suggesting the data was peaked (leptokurtic) compared to a normal distribution. Applying the rule of thumb (dividing each value by its standard error within  $\pm 1.96$  limits) as well as Shapiro-Wilk test ( $ps < .001$ ), the assumption of normality was violated.

## Validity

Means, standard deviations, and point-biserial correlation among all studied variables are presented in Table 6. For *convergent validity*, as hypothesized and consistent with Study 1, PRF subscales were correlated with the general regulatory focus (GRFM) subscales in the moderate range, suggesting PRF is related to but also different from the classic notion of a general regulatory foci system.

I also hypothesized PRF would be correlated with personality traits in the low to moderate range given past research on regulatory focus and personality traits. Contrary to our hypothesis, PRF was overall not related with personality traits - only one (i.e., promotion PRF and agreeableness) among the ten correlation coefficients was significant ( $r = .28, p < .01$ ).

Consistent with my hypothesis, PRF subscales were correlated with self-construal subscales. I further compared the strength of these correlation coefficients following Diedenhofen & Musch's (2015) guidelines given the dependent data structure and correlations between the subscales. Results indicated the correlation coefficient between promotion PRF and independent self-construal ( $r = .28, p < .01$ ) is larger ( $z = 2.8, p < .01$ ) than the correlation coefficient between prevention PRF and independent self-construal ( $r = .13, p < .01$ ). Whereas the correlation coefficient between promotion PRF and interdependent self-construal ( $r = .19, p < .01$ ) is smaller ( $z = -3.1, p < .001$ ) than the correlation coefficient between prevention PRF and interdependent self-construal ( $r = .35, p < .01$ ).

I hypothesized promotion and prevention PRF would be correlated with surgency and control child temperament respectively. It was found prevention PRF was significantly correlated with control ( $r = .26, p < .05$ ). However, contrary to our hypothesis, promotion PRF correlated with both control and surgency. The correlation coefficient between promotion PRF and surgency ( $r = .16, p < .05$ ) was not significant different ( $z = -1.70, p > .05$ ) from the correlation coefficient between promotion PRF and control ( $r = .32, p < .01$ ).

For *discriminant validity*, I hypothesized promotion and prevention PRF would not be differentially correlated with child outcomes, whereas different parenting styles would. As indicated in Table 6, promotion PRF subscale was correlated with less conduct problems ( $r = -.23, p < .01$ ), less emotional symptoms ( $r = -.18, p < .01$ ), less peer problems ( $r = -.23, p < .01$ ) and more prosocial behaviors ( $r = .33, p < .01$ ). Prevention subscale was correlated with less hyperactivity ( $r = -.12, p < .01$ ), less conduct problems ( $r = -.10, p < .05$ ), less peer problems ( $r = -.10, p < .05$ ) and more prosocial behaviors ( $r = .20, p < .01$ ). The directions of all the correlations between PRFs and five SDQ subscales are the same (e.g., both prevention and promotion PRF subscales correlate with less conduct problems), in contrast with parenting styles predicting child behaviors in opposite directions (e.g., parental warm correlates with less conduct problems, whereas coercion, non-reasoning, and shaming correlate with more problems).

Table 7. Means, standard deviations, and point-biserial correlations

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1.PRF Promotion	.18**	.34**	-.05	.16*	.32**	.49**	-.29**	-.24**	-.28**	.01	.28**	.13**	-.06	-.23**	-.18**	-.23**	.33**	.16	.11	.07	.28**	-.02
2.PRF Prevention	1	.20**	.21**	.12	.26**	.22**	.05	.07	.07	.39**	.19**	.35**	-.12**	-.10*	-.06	-.10*	.20**	-.11	.12	.09	.13	-.01
3.GRFM Promotion		1	.18**	.30**	.34**	.32**	-.10*	<.01	.08	.17**	.53**	.30**	-.11*	-.08	-.07	-.14**	.17**	.21*	.29**	.43**	.31**	-.40**
4.GRFM Prevention			1	-.03	.04	-.04	.28**	.27**	.36**	.31**	<.01	.25**	.20**	.23**	.23**	.21**	-.08	-.20*	-.33**	-.03	-.23*	.36**
5.CBQ Surgency				1	.01	.18*	-.05	-.02	-.02	.11	.18**	.09	-.02	-.06	-.28**	-.31**	.25**	.14	.21	-.13	.30*	-.18
6.CBQ Control					1	.29**	.04	.04	.02	.18*	.39**	.20**	-.30**	-.23**	-.11	-.18*	.40**	.33*	.13	.12	.05	-.09
7.Warmth						1	-.32**	-.26**	-.31**	.27**	.37**	.14**	-.10*	-.22**	-.17**	-.24**	.39**	.22*	.21*	.01	.22*	-.05
8.Physical Coercion							1	.63**	.65**	.27**	-.12*	.08	.19**	.39**	.19**	.28**	-.21**	.01	-.23*	.15	-.23*	.25**
9.Non-reasoning								1	.65**	.28**	-.04	.16**	.11*	.33**	.20**	.25**	-.20**	-.07	-.12	.10	-.13	.13
10.Shaming									1	.23**	-.06	.16**	.15**	.40**	.28**	.28**	-.17**	.04	-.11	.20*	-.15	.04
11.Protection										1	.15**	.31**	.08	.07	.08	.06	.11*	.01	-.09	.03	-.01	.19*
12.Independent											1	.27**	-.17**	-.16**	-.14**	-.15**	.27**	.41**	.35**	.41**	.25**	-.33**
13.Interdependent												1	-.09	-.05	-.03	-.09	.18**	.15	.17	.32**	.33**	-.16
14.Hyperactivity													1	.47**	.35**	.31**	-.23**	-.03	-.26**	-.01	-.13	.32**
15.Conduct Problems														1	.48**	.39**	-.35**	.06	-.33**	.06	-.24*	.33**
16.Emotion Problems															1	.46**	-.15**	-.04	-.30**	-.12	-.19	.32**
17.Peer Problems																1	-.30**	-.09	-.32**	-.01	-.20*	.28**
18.Prosocial																	1	.19*	.14	.06	.29**	-.06
19.Openness																		1	.37**	.31**	.41**	-.27**
20.Conscientiousness																			1	.20*	.52**	-.63**
21.Extraversion																				1	.24*	-.35**
22.Agreeableness																					1	-.50**
23.Neuroticism																						1
Mean		6.53	4.93	4.64	5.34	4.31	1.69	1.89	1.88	3.17	5.09	4.75	3.67	1.32	1.83	2.00	7.64	3.47	3.81	3.03	3.76	2.67
Standard Deviations		1.50	1.68	1.05	.88	.62	.74	.82	.85	.86	.85	.82	2.50	1.62	2.04	1.86	2.25	.65	.73	.93	.84	.94
N		493	493	209	202	445	446	443	446	442	437	437	437	437	436	436	438	107	107	107	107	107

To examine a stricter version of this hypothesis, I further compared the strength of these correlation coefficients (Diedenhofen & Musch, 2015). Results indicated promotion and prevention PRF subscales did not differ significantly in predicting hyperactivity, however PRF subscales differentially predicted conduct problems, emotional symptoms, peer problems and prosocial behaviors ( $ps < .05$ ). Taken together, our data partially supported our hypothesis; both promotion and prevention PRF can lead to successful childhood outcomes, but they differ in the strengths of prediction in the same outcome.

For *incremental validity*, five sets of hierarchical regressions were performed using parenting style subscales as outcome (Table 8). In Step 1, promotion and prevention GRFM scores were entered. In Step 2, promotion and prevention PRF scores were further added. It was found that PRF subscales could predict parenting warmth/acceptance ( $\Delta F = 50.29, p < .001$ ), physical coercion ( $\Delta F = 15.04, p < .001$ ), non-reasoning/punitive ( $\Delta F = 14.45, p < .001$ ), shaming/love withdrawal ( $\Delta F = 26.83, p < .001$ ), and protection ( $\Delta F = 28.82, p < .001$ ) above and beyond GRFM.

Table 8. Hierarchical regressions on five dimensions of PSDQ

Warmth	B	S.E.	sr <sup>2</sup>	R <sup>2</sup>	$\Delta R^2$	F	$\Delta F$
Step 1				.11		27.59***	
Promotion GRFM	.14***	.02	.11				
Prevention GRFM	-.04*	.02	.01				
Step 2				.28	.17	42.38***	50.90***
Promotion GRFM	.07***	.02	.03				
Prevention GRFM	-.03	.02	.01				
Promotion PRF	.38***	.04	.14				
Prevention PRF	.09**	.03	.01				
Physical Coercion	B	S.E.	sr <sup>2</sup>	R <sup>2</sup>	$\Delta R^2$	F	$\Delta F$
Step 1				.10		24.28***	
Promotion GRFM	-.08**	.02	.02				



Prevention GRFM	.13***	.02	.09				
Step 2				.16	.06	19.04***	12.52***
Promotion GRFM	-.04	.02	.01				
Prevention GRFM	.12***	.02	.07				
Promotion PRF	-.27***	.05	.05				
Prevention PRF	.04	.04	<.01				

Non-reasoning	B	S.E.	sr <sup>2</sup>	R <sup>2</sup>	ΔR <sup>2</sup>	F	ΔF
Step 1				.07		17.24***	
Promotion GRFM	-.03	.03	<.01				
Prevention GRFM	.14***	.02	.07				
Step 2				.12	.05	15.35***	12.55***
Promotion GRFM	.01	.03	<.01				
Prevention GRFM	.12***	.02	.05				
Promotion PRF	-.30***	.06	.05				
Prevention PRF	.05	.04	<.01				

Shaming	B	S.E.	sr <sup>2</sup>	R <sup>2</sup>	ΔR <sup>2</sup>	F	ΔF
Step 1				.13		33.64***	
Promotion GRFM	.01	.03	<.01				
Prevention GRFM	.18***	.02	.13				
Step 2				.22	.08	30.31***	23.54***
Promotion GRFM	.07*	.03	.01				
Prevention GRFM	.16***	.02	.09				
Promotion PRF	-.41***	.06	.08				
Prevention PRF	.03	.04	<.01				

Protection	B	S.E.	sr <sup>2</sup>	R <sup>2</sup>	ΔR <sup>2</sup>	F	ΔF
Step 1				.11		26.92***	
Promotion GRFM	.07*	.03	.01				
Prevention GRFM	.15***	.02	.08				
Step 2				.22	.11	29.90***	29.34***
Promotion GRFM	.05	.03	.01				
Prevention GRFM	.11***	.02	.04				
Promotion PRF	-.09	.06	<.01				
Prevention PRF	.05	.05	<.01				

Lastly, for *concurrent validity*, promotion and prevention PRFs were fit into a series of regression models to predict participants' choices in each parenting vignette. For Vignette 1, similar to Study 1, promotion and prevention PRFs were fit into one logistic

regression model to predict participants' choices between a promotion and a prevention message framing. In addition, the logistic regression model was run separately on two age groups: 3 to 10 ( $n = 337$ ) and 11 to 18 ( $n = 160$ ) years old. As indicated in Table 9, the logistic regression model was significant for the all participants ( $\chi^2 = 25.90, p < .001$ , Nagelkerke  $R^2 = .07$ ). As hypothesized, with one unit increase in promotion PRF, the odds ratio was .73 higher to choose a promotion message framing over a prevention message framing; with one unit increase in prevention PRF, the odds ratio was .41 lower to choose a promotion message framing over a prevention message framing. When broken down into two age groups, both models for the 3-to-10 ( $\chi^2 = 20.97, p < .001$ , Nagelkerke  $R^2 = .09$ ) and 11-to-18 age group ( $\chi^2 = 7.15, p < .05$ , Nagelkerke  $R^2 = .06$ ) were significant. The overall variances explained in these models, indicated by Nagelkerke  $R^2$ , were relatively low (6% to 9%).

Table 9. Logistic regressions on parenting Vignette 1 by child age group

	B	OR	$\chi^2$	$R^2$
All age ( $n = 497$ )			25.90***	.07
Promotion PRF	.55	1.73***		
Prevention PRF	-.54	.59***		
3 to 10 ( $n = 337$ )			20.97***	.09
Promotion PRF	.69	1.98***		
Prevention PRF	-.57	.57**		
11 to 18 ( $n = 160$ )			7.15*	.06
Promotion PRF	.29	1.34		
Prevention PRF	-.50	.61*		

For each condition under Vignettes 2 to 4, promotion and prevention PRFs were fit into a linear regression model to predict the likelihood for their conditioned message

framing. In addition, each regression model was run separately on two age groups: 3 to 10 ( $n = 337$ ) and 11 to 18 ( $n = 160$ ) years old.

For the promotion condition under Vignette 2 on eating, as indicated in Table 10, the linear regression model was significant for all participants ( $F = 4.18, p < .05, R^2 = .03$ ). Neither of the predictors was significant. When broken down into two age groups, the model was significant for the 3-to-10 age group ( $F = 3.14, p < .05, R^2 = .04$ ). As hypothesized, with one unit increase in promotion PRF, it would be .32 higher on the likelihood for parents to use a promotion message framing (i.e., “When you eat vegetables, you will grow tall and strong”). For the prevention condition under Vignette 2 on eating, none of the models was significant.

For the promotion condition under Vignette 3 on scoring 70 on a quiz, as indicated in Table 10, the linear regression model was significant for all participants ( $F = 6.29, p < .01, R^2 = .05$ ). As hypothesized, with one unit increase in promotion PRF, it would be .05 higher on the likelihood for parents to praise the 70% correct. When broken down into two age groups, the model was significant for the 11-to-18 age group ( $F = 3.88, p < .05, R^2 = .10$ ). Contrary to my hypothesis, however, with one unit increase in prevention PRF, it would be .51 higher on the likelihood for parents to praise the 70% correct. For the prevention condition under Vignette 3 on scoring 70 on a quiz, the linear regression model was significant for all participants ( $F = 3.99, p < .05, R^2 = .03$ ). Specifically, with one unit increase in promotion PRF, it would be .27 higher on the likelihood for parents to talk about the 30% incorrect, which is contrary to my hypothesis.

When broken down into two age groups, the model was significant for the 3-to-10 age group ( $F = 4.38, p < .05, R^2 = .05$ ). With one unit increase in prevention PRF, it would be .35 higher on the likelihood for parents to talk about the 30% incorrect.

For both conditions under Vignette 4 on scoring 90 on a quiz, none of the models were significant ( $ps > .05$ ).

### **Discussion**

This study further validated the PRF scale in a more representative, diverse sample using a two-step tiered MTurk sampling technique. The two-factor structure identified in Study 1 demonstrated satisfactory model fit via CFA. PRF showed good internal reliabilities; the two-week test-retest reliability was acceptable for the promotion subscale (.77) but poor for the prevention subscale (.65). Consistent with Study 1, both PRF subscales were negatively skewed and leptokurtic.

In terms of validity, I demonstrated the convergent validity of PRF with self-regulatory focus using a different regulatory focus measure (GRFM) from Study 1 (RFQ). This is an important point to note given discrepancies and lack of convergence found in these two popular measures of regulatory focus (Haws et al., 2010, Summerville & Roese, 2008). I also demonstrated the incremental validity of PRF to predict parenting styles and behaviors, using different subscales/factors from Study 1, above and beyond general regulatory focus. The combinations of these findings from Study 1 and Study 2, using the same constructs but different measures in two independent, heterogeneous samples, provide strong support for the conceptual premise that PRF is a valid construct

Table 10. Linear regressions on parenting Vignettes 2-4 by child age group

[illegible]

separate from a general, self-regulatory focus, and relates to parenting styles and behaviors.

More importantly, Study 2 added more evidence to the construct validity of PRF beyond Study 1 by incorporating measures of *personality traits*, *self-construal*, *child temperament*, and *child outcomes*. In terms of personality traits, PRF was overall not correlated with personality traits, with the exception of promotion PRF with agreeableness. As mentioned in the literature review, Lanaj et al.'s (2012) meta-analytical findings indicated promotion regulatory focus was related to extraversion ( $\rho = .36$ ), openness ( $\rho = .26$ ), and agreeableness ( $\rho = .24$ ), whereas prevention regulatory focus was related to neuroticism ( $\rho = .21$ ). Conscientiousness was related to both promotion ( $\rho = .42$ ) and prevention ( $\rho = .12$ ) regulatory foci. In the current study, by large consistent with past findings, promotion regulatory focus was related to extraversion ( $r = -.31$ ). And both dimensions were correlated with openness ( $r = .21$ /.20 for promotion and prevention respectively, the same as follows), conscientiousness ( $r = .29$ /.30), agreeableness ( $r = .31$ /.23) and neuroticism ( $r = -.40$ /.36). Taken altogether, comparison of these findings shows PRF scale adds a layer of specificity to capture the individual differences that are beyond the measurement of personality traits or characteristic adaptations in general regulatory focus (DeYoung, 2015; McAdams & Pals, 2006).

With regards to self-construal, the current study extends research on general regulatory focus and self-construal (e.g., Aaker & Lee, 2001; Kurman & Hui, 2011). Rather than taking an essentialist approach to posit East-West national dichotomies of

interdependent vs. independent self-construal, I measured the self-construal construct in the U.S. sample, and established self-construal as an underlying individual difference mechanism that delineates parenting regulatory focus (and general regulatory focus). Assuming consistency between parents' own self-construal and imparting this self-construal in their offspring, the linkage of promotion based parenting overlaps with an independent self-construal in fostering individual pursuits; whereas, prevention based parenting overlaps with an interdependent self-construal in fostering societal and reliable pursuits. Another possible explanation is parenting regulatory focus serves as the mediator between children's self-construals and the broader cultural macrosystem (individualism vs. collectivism). Grounded in Bronfenbrenner's socio-ecological theory, individuals cannot be considered in isolation; rather, they are embedded within increasingly broader systems within systems (e.g., family, neighborhood, society) whose implications and circumstances trickle down to inform child development. In such case, the impact of individualism and collectivism on the societal level may trickle down to inform the development of self-construal in children via parenting regulatory focus.

A subsample of the current findings explored the interrelationships between child temperament and parenting regulatory focus. Surgency (similar to extraversion in big five personality trait) was found to correlate with promotion PRF and control (similar to conscientiousness) was found to correlate with both promotion and prevention PRF. These results corroborate the ideas put forth by Lengua and Kovacs (2005), who suggested the influence of child temperament on parenting responses. For children who

exhibit more fearfulness (captured by control temperament dimension for inhibitory control, attentional control, and perceptual sensitivity) and positive affect (captured by surgency temperament dimension for its high intensity pleasure), their caregivers may respond in a more promotion-based parenting that focused on nurturance and eagerness towards goals; and for children who exhibit more difficulties or negative affect (perhaps captured by perceptual sensitivity and the low intensity pleasure in the control dimension), their caregivers may respond in a more prevention-based parenting that emphasizes the safety and vigilance towards the environment.

Lastly, child outcome was theorized to not correlate with parenting regulatory focus. In other words, both promotion and prevention parenting regulatory foci can lead to successful child outcome, and promotion and prevention parenting regulatory foci can serve as distinct pathways towards the same parenting goal. Contrary to the expectation, promotion PRF was a stronger predictor than prevention PRF for less conduct problems, emotional problems, and peer problems, and more prosocial behaviors. It is interesting to note that the correlations between two PRF subscales and five SDQ subscales were all in the same direction, and the effect sizes were in the small to medium range.

Study 2 also presented additional parenting vignettes for validation of PRF's concurrent validity. The results indicate that when parents are presented with prevention and promotion message framing for encouraging children to pursue college (Vignette 1, the same as Vignette 2 in Study 1), both promotion and prevention dimensions of PRF served as good predictors of parents' choice. Perhaps somewhat counterintuitively, the



prediction (both overall and individual predictors) appears to be stronger in younger age group than the older age group, for whom college is a more temporally related task.

Furthermore, the findings vary unexpectedly across Vignettes 2 to 4, when parents were randomly assigned into only promotion or prevention condition for each vignette. Five out of 18 regression models conducted, 2 (PRF) by 3 (Age groups) by 3 (Vignettes), were statistically significant at the  $p = .05$  level, and 1 was statistically significant at the  $p = .01$  level. Therefore, extrapolations of the findings should be made with caution. In Vignette 2, as expected, a promotion PRF predicted promotion message framing to encourage 3- to 10-year-old children to grow stronger by eating more vegetables. In Vignette 3, which was written similarly to the opening scenario in Chapter 1, two surprising findings occurred where promotion PRF predicted prevention choice (to talk about 10% incorrect) in all age groups and prevention PRF predicted promotion choice (to praise for 90% correct) in 11- to 18- year-old children. Taken together, these findings suggest the PRF, which was designed to measure chronic parenting regulatory focus, may vary in its ability to predict situation-specific parenting choices. In some parenting scenarios, such as Vignette 3, there may be other underlying mechanisms above and beyond parenting regulatory focus that may best explain the variability in parents' choices.

To summarize, Study 2 replicated and extended the findings from Study 1 in several important ways. First, the same two-factor structure of PRF was validated via CFA in a different, more diverse sample from Study 1, and PRF indicated similar internal

consistency reliability and normative information as Study 1. Second, I extended the reliability information to include a two-week test-retest reliability. Third, I replicated findings on PRF's convergent validity with regulatory focus and incremental validity with parenting styles from Study 1. Lastly, I provided convergent validity information of PRF with personality traits, self-construal, child temperament, and child outcomes. The combinations of Study 1 and Study 2 provide support for the conceptual premise that parenting regulatory focus is a distinctive construct that measure two dimensions of parenting motivations. Future research is thus warranted to utilized the PRF Scale as a valuable tool to further examine parenting motivations.

## CHAPTER 4: CROSS-NATIONAL VALIDATION (STUDY 3)

### **Study Purpose**

The objective of the Study 3 was to examine the PRF Scale in a Chinese parent sample. The specific aims were 1) to examine the factor structure and psychometric properties of PRF based upon a Chinese parent sample, and 2) to explore the measurement invariance across Chinese and U.S. parent samples through multi-group CFA.

Consistent with findings from Study 2, it was hypothesized the PRF Scale would demonstrate a two-factor structure through CFA and high internal consistency in the Chinese parent sample. Building upon Study 2, the PRF Scale was also hypothesized to demonstrate construct validity through established measures of general regulatory focus, self-construal, child temperament, parenting styles, and child outcomes. In addition, by drawing both Study 2 and Study 3 samples, I hypothesized the PRF Scale would demonstrate configural, metric, and scalar invariances across two national samples.

### **Study Design**

#### **Procedures**

Participants were recruited at kindergarten, primary school, middle school, and high school settings in three cities/provinces in mainland China. The three cities are all prefecture-level cities (i.e., lower than a province but higher than a county), in one southern province and two northern provinces. All schools surveyed in the current sample were public school except one kindergarten. According to the Ministry of Education

report, privately-owned kindergarten, primary school, middle school, and high school constituted 55.2%, 7.6%, 12.3%, and 11.8% of the student populations compared to public schools at kindergarten (44.8%), primary school (92.4%), middle school (87.7%), and high school levels (88.2%) in 2016. Study information was announced to eligible parents at the parent-teacher conference or via group text messages, which is how parents typically receive school announcements. Parents were invited to participate in a brief survey study with a 1 in 40 chance to win a 100-yuan (about 15 U.S. dollars) value gift card. The inclusion criteria are that parents are above 18 years old, Chinese citizens, and have at least one child between the age of 3 to 18 years old. A total of 501 subjects who met the inclusion criteria consented to participated in the study. 145 responses were excluded due to failure in attention check questions embedded or have more than 90% missing values in the survey. Therefore, a total of 356 participants were included for final analysis.

### **Participants**

Among the 356 participants included in the final sample, 77% were female ( $n = 274$ ) and 91% were married ( $n = 324$ ). The average age was 38.66 years old ( $SD = 5.13$ ), ranging from 25 to 58. Participants are predominantly Han ( $n = 337$ ; 95%) and other ethnicities (i.e., Hui, Mongolian, Manchu, and Zhuang). Most participants ( $n = 301$ ) identified having city *hukou* or house registration, as compared to rural *hukou* ( $n = 50$ ), and majority denied being migrant workers ( $n = 319$ ) from other regions in China. In terms of education, the current sample included 107 participants reported completing less

than college level education or Bachelor's degree and 244 reported having college or above college level education. Majority of the sample were working full time ( $n = 258$ ; 73%). Based on Chinese census, the annual family income were below 5,200 yuan ( $n = 23$ ), between 5,200 to 12,000 yuan ( $n = 22$ ), between 12,000 to 19,000 yuan ( $n = 34$ ), between 19,000 to 29,000 yuan ( $n = 26$ ), between 29,000 to 54,000 yuan ( $n = 48$ ), and above 54,000 yuan ( $n = 195$ ). Collectively, the information on income, working status, and education attainment indicated a middle to high social class in the current sample.

In terms of family composition, participants reported having one child ( $n = 233$ ; 73%), two ( $n = 83$ ; 26%), and three children ( $n = 5$ ; 2%). For the target child that participants identified for survey responses, the mean age was 10.47 years old ( $SD = 4.00$ ), with 52% boys ( $n = 182$ ) and 48% girls ( $n = 169$ ). Participants reported to be biological parent ( $n = 346$ ; 97%), adoptive parent ( $n = 1$ ), or legal guardians ( $n = 8$ ). Seven target children were reported to have physical or mental disabilities.

## Measures

**Parenting regulatory focus.** The 16-item translated version of the PRF Scale was administered (See Appendix). The PRF was translated from English to simplified Chinese following Brislin's (1980) three-step back-translation guidelines.

**General regulatory Focus.** Consistent with Study 2, chronic regulatory focus was assessed by the General Regulatory Focus Measure (GRFM; Lockwood et al., 2002). The translated Chinese-version GRFM has demonstrated adequate internal consistency reliabilities in both college and non-college Chinese samples ( $\alpha = .77$  to  $.87$ ; Li, Liu,

Shang, & Xi; Shi, Zhang, Xu, Liu, & Miao, 2015; Zhang & Mittal, 2007). In the current study, promotion and prevention GRFM subscales were positively correlated ( $r = .69$ ,  $p < .01$ ), with acceptable model fit for a two-factor structure (RMSEA = .082, CFI = .868, SRMR = .060). Cronbach's  $\alpha = .87$  for promotion GRFM subscale score, and  $\alpha = .83$  for prevention GRFM subscale score.

**Child Temperament.** Consistent with Study 2, child temperament was assessed by the surgency and effortful control subscales from the very-short-form Children's Behavior Questionnaire (CBQ; Putnam & Rothbart, 2006). The translated Chinese-version (Rothbart, 2000) was administered to respondents whose target child was between 3 to 7 years old as the cut-off age range ( $n = 96$ ). The standard CBQ has demonstrated adequate reliability and construct validity with Chinese children (e.g., Ahadi, Rothbart, & Ye, 1993; Eisenberg, Chang, Ma, & Huang, 2009; Xu, Farver, & Zhang, 2009; Zhou et al., 2004). Cross-national studies also demonstrated the standard CBQ's factor structure to be similar in Chinese and American samples (Ahadi et al., 1993; Sleddens, Kremers, Candel, De Vries, & Thijs, 2011). The very-short-form CBQ has also shown adequate internal consistency reliabilities in mother-rated surgency ( $\alpha = .65$ ) and effortful control ( $\alpha = .72$ ) subscales (Wang, Colins, Deng, Deng, Huang, & Andershed, 2018). In the current study, CFA suggested poor model fit for surgency subscale (RMSEA = .128, CFI = .316, SRMR = .137) and effort control subscale (RMSEA = .093, CFI = .640, SRMR = .122). In addition, CFA results indicated negative item loadings from four reverse scoring items (Item 5, 7, 8, and 12), suggesting some

inattention concerns in survey responses. Cronbach's  $\alpha = .56$  for surgency subscale score, and  $\alpha = .76$  for effortful control subscale score, with no significant correlation between the two subscales ( $r = .17, p > .05$ ).

**Parenting Styles.** Consistent with Study 2, warmth/acceptance, physical coercion, nonreasoning/punitive, shaming/love withdrawal, and protection subscales (Robinson et al., 2001; Wu et al., 2002) were administered to assess five dimensions of parenting styles. The Chinese-version of the parenting style measures has been widely used and demonstrated satisfactory reliabilities in Chinese populations (e.g., Chen, Dong, & Zhou, 1997; Wu et al., 2002; Zhou et al., 2004). The measure also indicated configural and partial metric measurement invariance between U.S. and mainland Chinese samples (Wu et al., 2002). The patterns of correlations among the parenting styles differ in between U.S. and mainland Chinese samples (see *Table 6*, p. 488 in Wu et al., 2002). In the current study, warmth/acceptance ( $\alpha = .72$ ), physical coercion ( $\alpha = .85$ ), nonreasoning/punitive ( $\alpha = .64$ ), shaming/love withdrawal ( $\alpha = .51$ ), and protection ( $\alpha = .44$ ) indicated weak to adequate internal consistency reliabilities for these subscale scores.

**Self-Constraint.** Consistent with Study 2, the Chinese version of SCI (Singelis, 1994) was administered to parents in assessing their self-construal. In studies with Chinese populations (e.g., Mortenson, 2002; Singelis et al., 1999; Su et al., 2013), the Cronbach's alphas ranged from .58 to .85 for independent subscale, and from .58 to .83 for interdependent subscale. In addition, Mortenson (2002) reported consistent factor

loadings as in Singelis's (1994), whereas Hsu (2002, 2004) found poor factor loadings of SCI using translated Chinese version in Taiwanese college students. After deleting items with poor factor loadings, Hsu reported the Cronbach's alpha reliability was .63 to .75 for independent subscale, and .66 to .73 for interdependent subscale. Thus, the evidence is mixed for the translated Chinese-version SCI. In the current study, CFA suggested good model fit ( $RMSEA = .054$ ,  $CFI = .854$ ,  $SRMR = .058$ ). Cronbach's  $\alpha = .79$  for independent self-construal subscale score, and  $\alpha = .78$  for interdependent self-construal subscale score, with two subscales highly correlated with each other ( $r = .67, p < .01$ ).

**Child Outcome.** Consistent with Study 2, the Chinese version of the Strengthen and Difficulties Questionnaire (SDQ; Goodman, 2001) was administered to assess child's hyperactivity, emotional symptoms, conduct problems, peer problems, and prosocial behaviors. The Chinese version of the SDQ has been widely used (Du et al., 2008; Yao et al., 2009) yet mixed findings were reported with regards to its psychometrics properties. In a scale validation study with 690 subjects from 3 to 17 years old, Du et al. (2008) found that the five-factor structure held more strongly for the prosocial behavior, hyperactivity, and emotional symptoms subscales than for conduct problems and peer problems subscales (i.e., loadings onto other dimensions). Cronbach's alphas were generally low ranging from .30 to .83 (Du et al., 2008). Mellor, Wong, & Xu (2011) also reported moderate to strong inter-parent agreement on SDQ. In the current study, Cronbach's  $\alpha$ s are .71, .69, .47, .26, and .75 for the hyperactivity, emotional symptoms, conduct problems, peer problems, and prosocial behaviors respectively. CFA suggested



acceptable model fit (RMSEA = .070, CFI = .757, SRMR = .084) for the five-factor model. In addition, CFA results indicated negative item loading from one peer problems item (i.e., “gets along better with adults than with other children”). In contrast, the two-factor model CFA indicate acceptable model fit (RMSEA = .079, CFI = .707, SRMR = .075) with no negative loading item. Therefore, I used the two-factor scoring with externalizing symptoms ( $\alpha = .73$ ) and internalizing symptoms ( $\alpha = .62$ ) in subsequent analyses.

**Parenting Vignettes.** Consistent with Study 2, participants read four parenting vignettes translated into Chinese following Brislin’s (1980) three-step back-translation guidelines (see Appendix). In Vignette 1 on college, parents were asked to respond in either promotion-oriented choice “going to college will be a great opportunity for you to grow. You will be able to try new things and take some risks to pursue your dream ( $n = 339$ )” or the prevention-oriented choice “going to college will be an important step toward your future security. You will need to do what is expected and learn to become responsible ( $n = 154$ ).” In this vignettes, prevention-oriented choice was code as 0, and promotion-oriented choice was coded as 1.

For Vignettes 2 to 4, participants were randomized to receive either a promotion or a prevention condition. Parents were asked to rate on a 1 (= very unlikely) to 6 (= very likely) Likert-type scale to the presented condition for each vignette. Their responses were treated as continuous variables for further analyses. The randomization for every

vignette was independent from each other. Thus one participant may receive a promotion condition for Vignette 2, but receive prevention conditions for both Vignettes 3 and 4.

In Vignette 2, parents were asked to imagine “your child is a picky eater,” and they wanted to “encourage him or her to eat more vegetables.” Under the promotion condition ( $n = 249$ ), parents were asked to respond to how likely they are going to tell their child “when you eat vegetables, you will grow tall and strong ( $M = 4.76$ ,  $SD = 1.26$ ).” Under the prevention condition ( $n = 247$ ), parents were asked to respond to how likely they are going to tell their child “when you don’t eat vegetables, you will not grow tall and get sick ( $M = 3.42$ ,  $SD = 1.65$ ).”

In Vignette 3, parents were asked to imagine “your child scores 70 out of 100 on a quiz.” Under the promotion condition ( $n = 251$ ), parents were asked to respond to how likely they are going to “praise him or her for getting 70% correct ( $M = 3.63$ ,  $SD = 1.42$ ).” Under the prevention condition ( $n = 245$ ), parents were asked to respond to how likely they are going to “talk to him or her about the 30% incorrect ( $M = 4.54$ ,  $SD = 1.36$ ).”

In Vignette 4, parents were asked to imagine “your child scores 90 out of 100 on a quiz.” Under the promotion condition ( $n = 249$ ), parents were asked to respond to how likely they are going to “praise him or her for getting 90% correct ( $M = 5.64$ ,  $SD = .81$ ).” Under the prevention condition ( $n = 248$ ), parents were asked to respond to how likely they are going to “talk to him or her about the 10% incorrect ( $M = 3.16$ ,  $SD = 1.73$ ).”

## Results

### Data Analysis Plan

In the first part of the data analysis, I replicated all available analyses based on Study 2 results to examine PRF's reliability, normative information, and validity in the Chinese parent sample. After establishing the dimensionality and reliability of the PRF Scale in the Chinese sample, a nested, multi-group CFA would be used to establish the measurement equivalence using both U.S. and Chinese samples following a series of increasingly stringent equality parameters (Brown, 2006). Following the guidelines set by Muthén and Asparouhov (2002), a two-factor (each factor with 8 items) model was specified for all steps of the measurement invariance test with full information maximum likelihood estimation (all missingness < 1%) in *Mplus* (Muthén & Muthén, 2012). Specifically, configural, metric, scalar, and invariance models would be sequentially evaluated for PRF Scale's measurement invariance on nationality.

For the configural invariance, both groups (i.e., U.S. vs. China) were specified to have the same factor structure, but the magnitudes of all estimates including factor loadings and were allowed to vary. If the fit of the baseline model was satisfactory, I would proceed to Step 2 to test the hypothesis of equivalence in factor loadings by comparing two nested models, the baseline model and a full metric invariance model in which all loadings would be constrained to be equal among groups. A significant chi-square difference between the two nested models would indicate that the assumption of full metric invariance should be rejected. In such cases, partial metric invariance was

examined by sequentially relaxing constraints on loadings that are found to differ across groups. Similarly, if the fit of the full or partial metric model was satisfactory, I would proceed to Step 3 to test the hypothesis of equivalence in intercepts by comparing two nested models, the final metric model and a scalar invariance model in which all intercepts would be constrained to be equal among groups. Intercept loadings would be further adjusted if assumption of full scalar invariance cannot be made. I would further, similar to previous steps, constrain the factor variance (Step 4) and error variance (Step 5) to fully examine the factorial invariance structure of the PRF scale across U.S. and Chinese samples.

The overall fit at each step was determined by the model's statistical and descriptive fit. A model is determined to have acceptable fit if it meets the cut-off scores indicating acceptable model fit for the descriptive fit indices: the comparative fit index (CFI), Tucker-Lewis Index (TLI), and the root mean square error of approximation (RMSEA). Utilizing the cut-off scores proposed by Bentler (1990), Hu and Bentler (1999), and Steiger (1990), (a) RMSEA values less than .05 indicated good model fit and values less than .08 indicated acceptable model fit; (b) CFI values greater than .95 indicated good model fit and values greater than .90 indicated acceptable model fit; and (c) SRMR values less than .08 indicated good model fit. For configural invariance only, just acceptable model fit was necessary to establish configural invariance. If configural invariance could not be established, the fit of the model across the baseline groups were examined separately instead. However, for metric and scalar invariance to be established

there must be acceptable model fit and each model also has to demonstrate that it fits the data as well as the preceding model. This was done with a chi-square difference test to find a more parsimonious model (i.e., more restrained invariance model) without significant fit loss. If invariance could not be established, the modification indices will be examined, and revised invariance models will be tested to see if partial invariance could be established following procedures set by Steenkamp and Baumgartner (1998).

### CFA

A CFA model was fitted to further examine the stability of the two-factor model in the Chinese sample. As indicated in Figure 8, Promotion and prevention based parenting regulatory foci were positively correlated ( $r = .53, p < .001$ ), with RMSEA=.088, CFI=.780, SRMR=.079, which indicated good model fit. Therefore, subsequent analyses were based upon the 16-item, 2-factor structure of PRF, consistent with Study 1 and 2.

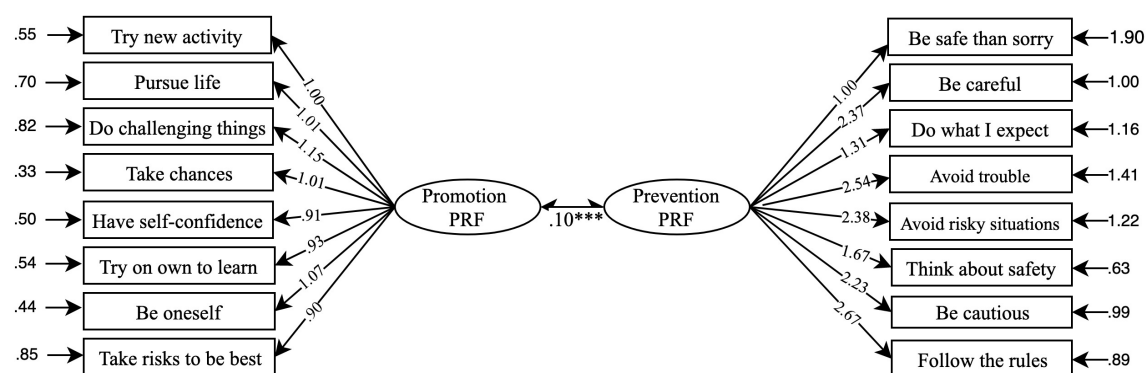


Figure 8. Factor Structure and loadings of PRF Scale

## Reliability

Estimates of the internal consistencies for PRF Scales were measured by Cronbach's alphas, with  $\alpha = .77$  for promotion PRF subscale score and  $\alpha = .77$  for prevention PRF subscale score as well, which suggested the two factors have acceptable levels of internal consistency in the Chinese sample.

## Normative Information

The means and standard deviations were as follows for promotion ( $M = 5.10$ ,  $SD = .63$ ) and prevention ( $M = 4.82$ ,  $SD = .70$ ) PRF subscales. In addition, the skewness and kurtosis indices were computed. The skewness indexes were negative ( $-.94$  for promotion and  $-.69$  for prevention), suggesting that the data was left-skewed; the kurtosis indexes were positive ( $1.46$  for promotion and  $.76$  for prevention), suggesting the data was peaked (leptokurtic) compared to a normal distribution. Applying the rule of thumb (dividing each value by its standard error within  $\pm 1.96$  limits) as well as Shapiro-Wilk test ( $ps < .001$ ), the assumption of normality was violated.

## Validity

Means, standard deviations, and point-biserial correlation among all studied variables were presented in Table 8. As hypothesized and consistent with Study 1 and 2, for convergent validity, PRF promotion and prevention subscales were correlated with the general regulatory focus (GRFM) promotion ( $r = .17$ ,  $p < .01$ ) and prevention ( $r = .16$ ,  $p < .01$ ) subscales respectively. The low values of the correlation coefficients

suggested PRF was related to but also different from the classic notion of a general regulatory foci system.

Contrary to my hypothesis, PRF subscales were not correlated with self-construal subscales. I also hypothesized promotion and prevention PRF would be correlated with surgency and control child temperament respectively. Contrary to our hypothesis and inconsistent with Study 2, only promotion PRF was correlated with child effortful control ( $r = .17, p < .01$ ).

I hypothesized promotion and prevention PRF would not be differentially correlated with child outcomes, whereas different parenting styles would. As indicated in Table 7, neither promotion nor prevention PRF subscale was correlated with externalizing or internalizing symptoms. However, both promotion ( $r = .32, p < .01$ ) and prevention ( $r = .21, p < .01$ ) PRF subscales were correlated with more prosocial behaviors. I further compared the strength of these correlation coefficients (Diedenhofen & Musch, 2015). Results indicated promotion and prevention PRF subscales differentially the prosocial behaviors ( $z = 2.02, p < .05$ ). In contrast, all five parenting style dimensions were correlated with externalizing, internalizing, and prosocial behaviors. Taken together, our data partially supported our hypothesis, that both promotion and prevention PRF can lead to successful childhood outcomes, but they differ in the strengths of prediction in the same outcome.

Table 11. Means, standard deviations, and point-biserial correlations

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.PRF Promotion	.42**	.17**	<.01	.17	.36**	.36**	.03	-.11	-.04	-.07	-.01	-.10	-.05	-.07	.32**
2.PRF Prevention	1	.10	.16**	.08	.16	.19**	-.03	-.08	.10	.25**	-.03	-.06	-.01	.04	.21**
3.GRFM Promotion		1	.69**	.20	.05	.16**	-.10	-.03	.08	.03	.11	-.02	.06	-.07	.08
4.GRFM Prevention			1	.15	-.17	.03	-.03	.01	.10	.18**	.06	-.06	.13*	.07	-.02
5.CBQ Surgency				1	.17	-.02	-.07	.09	-.11	-.04	-.15	-.13	.32**	-.18	.19
6.CBQ Control					1	.37**	-.09	-.18	-.19	-.21*	.02	-.04	-.32**	-.34**	.42**
7.Warmth						1	-.19**	-.30**	-.14*	.02	.13*	<.01	-.18**	-.17**	.33**
8.Physical Coercion							1	.57**	.45**	.26**	-.04	-.05	.47**	.32**	-.27**
9.Non-reasoning								1	.44**	.27**	<.01	.02	.40**	.22**	-.22**
10.Shaming									1	.33**	.10	.03	.28**	.16**	-.19**
11.Protection										1	.03	.03	.22**	.22**	-.14*
12.Independent											1	.65**	-.05	-.05	.05
13.Interdependent												1	.02	.02	-.05
14.Externalizing													1	.47**	-.34**
15.Internalizing														1	-.26**
16.Prosocial															1
Mean		5.44	4.75	4.19	5.20	4.11	1.86	1.73	2.40	2.86	4.70	4.00	5.77	4.32	7.74
Standard Deviations		1.60	1.54	.78	.88	.58	.71	.65	.68	.76	2.95	4.55	3.33	2.85	2.08
N		348	348	94	95	301	299	298	301	299	293	293	291	292	292



For *incremental validity*, five sets of hierarchical regressions were performed using parenting style subscales as outcome (Table 7). In Step 1, promotion and prevention GRFM scores were entered. In Step 2, promotion and prevention PRF scores were further added. It was found that PRF subscales could predict parenting warmth/acceptance ( $\Delta F = 19.97, p < .001$ ) and protection ( $\Delta F = 11.31, p < .001$ ) above and beyond GRFM. But the overall models for physical coercion, non-reasoning/punitive, and shaming/love withdrawal were not statistically significant at both Step 1 and 2 ( $ps > .05$ ).

Table 12. Hierarchical regressions on five dimensions of PSDQ

Warmth	B	S.E.	sr <sup>2</sup>	R <sup>2</sup>	$\Delta R^2$	F	$\Delta F$
Step 1				.04		5.73**	
Promotion GRFM	.10**	.03	.04				
Prevention GRFM	-.06*	.03	.01				
Step 2				.15	.11	13.39***	18.36***
Promotion GRFM	.06*	.03	.01				
Prevention GRFM	-.04	.03	<.01				
Promotion PRF	.29***	.06	.07				
Prevention PRF	.05	.05	<.01				
Physical Coercion	B	S.E.	sr <sup>2</sup>	R <sup>2</sup>	$\Delta R^2$	F	$\Delta F$
Step 1				.01		1.87	
Promotion GRFM	-.07	.04	.01				
Prevention GRFM	.03	.04	<.01				
Step 2				.02	.01	1.39	.92
Promotion GRFM	-.08*	.04	.02				
Prevention GRFM	.05	.04	.01				
Promotion PRF	.10	.08	.01				
Prevention PRF	-.06	.07	<.01				
Non-reasoning	B	S.E.	sr <sup>2</sup>	R <sup>2</sup>	$\Delta R^2$	F	$\Delta F$
Step 1				<.01		.43	
Promotion GRFM	-.03	.03	<.01				
Prevention GRFM	.03	.04	<.01				
Step 2				.01	.01	1.05	1.66

Promotion GRFM	-.02	.04	<.01				
Prevention GRFM	.02	.04	<.01				
Promotion PRF	-.08	.07	<.01				
Prevention PRF	-.04	.06	<.01				

Shaming	B	S.E.	sr <sup>2</sup>	R <sup>2</sup>	ΔR <sup>2</sup>	F	ΔF
Step 1				.01		1.47	
Promotion GRFM	.01	.03	<.01				
Prevention GRFM	.04	.04	<.01				
Step 2				.03	.02	1.97	2.33
Promotion GRFM	.02	.04	<.01				
Prevention GRFM	.02	.04	<.01				
Promotion PRF	-.11	.07	.01				
Prevention PRF	.13*	.06	.01				

Protection	B	S.E.	sr <sup>2</sup>	R <sup>2</sup>	ΔR <sup>2</sup>	F	ΔF
Step 1				.05	.05	7.11**	
Promotion GRFM	-.08*	.04	.02				
Prevention GRFM	.15***	.04	.05				
Step 2				.12	.07	10.05***	12.42***
Promotion GRFM	-.05	.04	.01				
Prevention GRFM	.10*	.04	.02				
Promotion PRF	-.22**	.08	.03				
Prevention PRF	.34***	.07	.07				

Lastly, for *concurrent validity*, promotion and prevention PRFs were fit into a series of regression models to predict participants' choices in each parenting vignette. For Vignette 1, similar to Study 1, promotion and prevention PRFs were fit into one logistic regression model to predict participants' choices between a promotion and a prevention message framing. In addition, the logistic regression model was run separately on two age groups: 3 to 10 ( $n = 128$ ) and 11 to 18 ( $n = 204$ ) years old. As indicated in Table 13, the logistic regression model was statistically significant for the all participants ( $\chi^2 = 8.44, p < .01$ , Nagelkerke  $R^2 = .04$ ). As hypothesized, with one unit increase in

prevention PRF, the odds ratio was .46 lower to choose a promotion message framing over a prevention message framing. When broken down into two age groups, only the model for the 3-to-11 age group was significant ( $\chi^2 = 6.17, p < .05$ , Nagelkerke  $R^2 = .07$ ). The overall variances explained in these models, indicated by Nagelkerke  $R^2$ , were relatively low (4% to 7%).

Table 13. Logistic regressions on parenting Vignette 1 by child age group

	B	OR	$\chi^2$	$R^2$
All age ( $n = 335$ )			8.44**	.04
Promotion PRF ( $n = 249$ )	.24	1.28		
Prevention PRF ( $n = 86$ )	-.61	.54**		
3 to 10 ( $n = 128$ )			6.17*	.07
Promotion PRF ( $n = 93$ )	.29	1.34		
Prevention PRF ( $n = 35$ )	-.73	.48*		
11 to 18 ( $n = 204$ )			2.90	.02
Promotion PRF ( $n = 153$ )	.23	1.26		
Prevention PRF ( $n = 51$ )	-.51	.61		

For each condition under Vignettes 2 to 4, promotion and prevention PRFs were fit into a linear regression model to predict the likelihood for their conditioned message framing. In addition, each regression model was run separately on two age groups: 3 to 10 and 11 to 18 years old.

For the promotion condition under Vignette 2 on eating, as indicated in Table 14, the linear regression model was significant for all participants ( $F = 4.36, p < .05, R^2 = .05$ ). As hypothesized, with one unit increase in promotion PRF, it would be .36 higher on the likelihood for parents to use a promotion message framing (i.e., “When you eat vegetables, you will grow tall and strong”). When broken down into two age groups, the

model was significant for the 3-to-10 age group ( $F = 4.12, p < .05, R^2 = .10$ ). Similarly, with one unit increase in promotion PRF, it would be .36 higher on the likelihood for parents to use a promotion message framing.

For the prevention condition under Vignette 2 on eating, the linear regression model was significant for all participants ( $F = 3.89, p < .05, R^2 = .04$ ). As hypothesized, with one unit increase in prevention PRF, it would be .33 higher on the likelihood for parents to use a prevention message framing (i.e., “When you don’t eat vegetables, you will not grow and get sick”). When broken down into two age groups, the model was significant for the 11-to-18 age group ( $F = 4.83, p < .05, R^2 = .08$ ). With one unit increase in promotion PRF, it would be .39 lower on the likelihood for parents to use a prevention message framing; with one unit increase in prevention PRF, it would be .53 higher on the likelihood for parents to use a prevention message framing

For the promotion condition under Vignette 3 on scoring 70 on a quiz, the linear regression model was significant for all participants ( $F = 8.94, p < .001, R^2 = .09$ ). As hypothesized, with one unit increase in promotion PRF, it would be .68 higher on the likelihood for parents to praise the 70% correct. When broken down into two age groups, both the models were significant for the 3-to-10 ( $F = 3.71, p < .05, R^2 = .11$ ) and 11-to-18 age group ( $F = 3.16, p < .05, R^2 = .05$ ). In the 3 to 10 age group, with one unit increase in promotion PRF, it would be .76 higher on the likelihood for parents to praise the 70% correct. In the 11 to 18 age group, with one unit increase in promotion PRF, it would be .53 higher on the likelihood for parents to praise the 70% correct.

Table 14. Linear regressions on parenting Vignettes 2-4 by child age group

	Vignette 2				Vignette 3				Vignette 4			
	B	S.E.	R <sup>2</sup>	F	B	S.E.	R <sup>2</sup>	F	B	S.E.	R <sup>2</sup>	F
<b>Promotion Condition</b>												
All age ( <i>n</i> = 178)			.05	4.36*	( <i>n</i> = 180)		.09	8.94***	( <i>n</i> = 170)		.06	4.83**
Promotion PRF	.36**	.13			.68***	.14			.44**	.14		
Prevention PRF	-.01	.12			-.22	.10			-.22	.13		
3 to 10 ( <i>n</i> = 74)			.10	4.12*	( <i>n</i> = 63)		.11	3.71*	( <i>n</i> = 64)			<i>n.s.</i>
Promotion PRF	.36*	.18			.76**	.28						
Prevention PRF	.18	.15			-.16	.24						
11 to 18 ( <i>n</i> = 104)				<i>n.s.</i>	( <i>n</i> = 116)		.05	3.16*	( <i>n</i> = 105)		.11	6.00**
Promotion PRF					.53*	.21			.63**	.18		
Prevention PRF					-.18	.20			-.37*	.17		
<b>Prevention Condition</b>												
All age ( <i>n</i> = 177)			.04	3.89*	( <i>n</i> = 175)			<i>n.s.</i>	( <i>n</i> = 185)			<i>n.s.</i>
Promotion PRF	-.10	.13										
Prevention PRF	.33**	.12										
3 to 10 ( <i>n</i> = 60)				<i>n.s.</i>	( <i>n</i> = 71)			<i>n.s.</i>	( <i>n</i> = 71)			<i>n.s.</i>
Promotion PRF												
Prevention PRF												
11 to 18 ( <i>n</i> = 114)			.08	4.83*	( <i>n</i> = 102)			<i>n.s.</i>	( <i>n</i> = 112)		.06	3.56*
Promotion PRF	-.39*	.19							.20	.21		
Prevention PRF	.53**	.18							.33	.20		

For the prevention condition under Vignette 3 on scoring 70 on a quiz, none of the models were statistically significant ( $ps > .05$ ).

For the promotion condition under Vignette 4 on scoring 90 on a quiz, the linear regression model was significant for all participants ( $F = 4.83, p < .01, R^2 = .06$ ). As hypothesized, with one unit increase in promotion PRF, it would be .44 higher on the likelihood for parents to praise the 90% correct. When broken down into two age groups, the model was significant for 11-to-18 age group ( $F = 6.00, p < .01, R^2 = .11$ ). With one unit increase in promotion PRF, it would be .63 higher on the likelihood for parents to praise the 90% correct; with one unit increase in prevention PRF, it would be .37 lower on the likelihood for parents to praise the 90% correct.

For the prevention condition under Vignette 4 on scoring 90 on a quiz, the linear regression model was not statistically significant for all participants. When broken down into two age groups, both the model was significant for 11-to-18 age group ( $F = 3.56, p < .05, R^2 = .06$ ). However, neither of the predictors was significant ( $ps > .05$ ).

### **Measurement Invariance**

As shown in Table 15, in the two-factor configural model, the model fit indices (RMSEA = .073, CFI = .898, SRMR = .063) suggested acceptable model fit, which was consistent with the CFA results from Study 1 and 2. All factor loadings were highly significant and positive in both U.S. and China sample. Thus, it can be concluded that the PRF Scale exhibited configural invariances between the two countries.

The hypothesis of full metric invariance was tested by constraining the matrix of factor loadings to be invariant between the two countries. As indicated in Table 15, the fit of this model is not significantly worse than the fit of the configural invariance model ( $\Delta\chi^2(14) = 21.163, p > .05$ ). The fact that metric invariance (i.e., “weak invariance”) held indicates that the items were related to the latent factor equivalently across groups, or more simply, that the same latent factors were being measured in each group.

The next step was to impose scalar invariance on the model. All intercepts were constrained to be equal between countries. Scalar invariance for this model was not supported. The increase in terms of chi-square from metric to scalar invariance model was highly significant ( $\Delta\chi^2(14) = 734.89, p < .001$ ), and the fit indices also showed deterioration. To test for partial scalar invariance, the constraints on intercept parameters were sequentially relaxed, starting with the loading that had the largest MI, until the model reached an acceptable fit. The statistics for overall fit of the final, best fit model of partial scalar invariance, after 8 out of 16 intercepts (items 2, 4, 6, 7, 10, 11, 13, and 15) were freed, were satisfactory. In terms of chi-square, the fit of this model is not significantly worse than the fit of final metric invariance model ( $\Delta\chi^2(6) = 7.596, p > .05$ ). The final partial scalar model was also significantly better than the initial scalar invariant model ( $\Delta\chi^2(8) = 727.303, p < .001$ ). Thus, partial scalar invariance was supported.

Table 15. Model comparisons for measurement invariance

	$\chi^2$ value	<i>df</i>	RMSEA	CFI	SRMR
1.Configural invariance	676.618	206	.073	.898	.063
2.Full metric invariance	697.781	220	.071	.896	.070
3.Full scalar invariance	1432.680	234	.110	.739	.103
3a.Final scalar invariance	705.377	226	.071	.896	.071
4.Factor variance invariance	740.208	228	.073	.889	.121
4a.Final factor variance invariance	707.892	227	.071	.895	.076
5.Error variance invariance	809.678	235	.076	.875	.095
5a.Final error variance invariance	713.225	230	.070	.895	.078

The hypothesis of invariant factor variances was rejected ( $\Delta\chi^2(2) = 4.831, p < .001$ ). The modification indices (MIs) revealed that this was because of a difference in prevention factor variance between U.S. and China samples. After removing the invariant constraint on the factor variance for prevention, the fit of the model was essentially the same as for the partial scalar invariance model ( $\Delta\chi^2(1) = 2.515, p > .05$ ). Similarly, the initial model specifying partial invariance of error variance was rejected. The increase in chi-square was highly significant ( $\Delta\chi^2(8) = 101.786, p < .001$ ). To test for partial error variance invariance, the constraints on variance parameters were sequentially relaxed, starting with the loading that had the largest MI, until the model reached an acceptable fit. The statistics for overall fit of the final partial error variance invariance, after five parameters (items 1, 3, 5, 12, and 14) were freed in addition to the eight parameters that did not pass the scalar invariance test, were satisfactory. In terms of chi-square, the fit of this model is not significantly worse than the fit of final factor variance invariance model ( $\Delta\chi^2(3) = 5.333, p > .05$ ).



The parameter for the final error variance invariance model was shown in Table 16. The error variances and item intercepts between the two national samples vary across a wide range of items, suggesting item-specific differences might exist between the two countries. The factor variance suggested American and Chinese parents had equivalent amounts of individual differences in promotion but not prevention PRF. The factor means indicated American and Chinese parents had comparable amounts of prevention PRF on average, but American parents had higher amounts of promotion PRF compared to Chinese parents.

### **Discussion**

Given the PRF's excellent psychometric properties from Study 1 and Study 2, this study further validated the translated PRF Scale in a sample of Chinese parents. This study set out with the aim of first assessing the psychometric properties of the translated Chinese PRF Scale; and given its validity, to subsequently examine the measurement invariance of U.S. vs. Chinese samples. Findings are discussed with these two aims respectively.

#### **Factor Structure, Reliability, and Validity of the Translated PRF Scale**

The first question in this study sought to determine if the two-factor structure identified in the U.S. parent samples from both Study 1 and 2 would hold in a Chinese parent sample. The results validated the two-factor structure via CFA in this Chinese parent sample. PRF also showed good internal reliabilities. Consistent with previous studies, both PRF subscales were negatively skewed and leptokurtic.

In terms of validity, the results with the Chinese parent sample indicate both consistencies as well as some inconsistencies with findings from the U.S. parent samples. Results from Study 3 converge with previous findings in PRF's convergent validity with self-regulatory focus measure. In all three studies, the magnitude of the correlations coefficients between PRF and regulatory focus subscales also support the validity of PRF as measuring a unique construct. Further examining PRF vs. self-regulatory focus's relationship with other constructs (Table 7 and Table 11) support the theory that PRF is a unique, domain-specific construct.

One major area of inconsistency among studies is PRF's relationship with self-construal. In Study 2, as theorized and hypothesized, promotion based parenting was more in alignment with an independent self-construal, whereas prevention based parenting was more in alignment with an interdependent self-construal. However, the findings from Study 3 with a Chinese parent sample do not demonstrate the interrelationships between PRF and self-construal. A possible explanation for these results may be the lack of adequate evidence in understanding self-construal in cross-cultural psychology research. Although Markus and Kitayama's (1991) theory of independent and interdependent self-construal had a major influence on personality and social psychology, research is still rife with questions with regards to its empirical evidence (Matsumoto, 1999; Vignoles et al., 2016). Self-construals were often substituted and measured by proxies of nationality, thus lacking further evidence about mechanism and impact of self-construal (rather than nationality) (Matsumoto, 1999). In addition, the

Table 16. Estimation results for final error variance invariance model

Item	Factor Loadings		Error variances		Item Intercepts	
	U.S.	China	U.S.	China	U.S.	China
Promotion						
Try new activity	.581	.581	.347	.525	5.417	5.417
Pursue life	.595	.595	.276	.650	5.527	5.160
Do challenging things	.658	.658	.583	.821	5.187	5.187
Take chances	.608	.608	.601	.314	4.994	5.641
Have self-confidence	.553	.553	.291	.519	5.589	5.589
Try on own to learn	.541	.541	.403	.434	5.375	5.454
Be oneself	.561	.561	.478	1.755	5.421	4.493
Take risks to be best	.532	.532	1.001	1.001	4.751	4.751
Prevention						
Be careful	.776	.776	.716	.716	4.808	4.808
Be safe than sorry	.915	.915	.599	.389	4.623	5.479
Avoid trouble things	.797	.797	.752	1.485	5.002	4.264
Avoid risky situations	.882	.882	.945	1.258	4.444	4.444
Think about safety	.746	.746	.531	.474	5.077	5.612
Be cautious	.925	.925	.487	.969	4.761	4.761
Follow rules	.965	.965	.721	.970	4.613	4.941
Do expect	.632	.632	1.069	1.069	4.586	4.586
	U.S.		China			
	Promotion	Prevention	Correlation	Promotion	Prevention	Correlation
Variances	.849	1.046		.849	.532	
Latent means	0	0	.226***	-.228**	-.072	.451***

*Note.* Latent means for the U.S. sample were fixed to 0 for identification.

interpretations of these findings may be limited by SCS's cross-cultural measurement invariance, and cultural-specific dimensions of self-construal may not have been adequately captured by SCS (Vignoles et al., 2016).

Another area of discrepancy in construct validity relates to child temperament. In Study 2, surgency was found to correlate with promotion PRF and control was found to correlate with both promotion and prevention PRF. In Study 3, only control was found to correlate with the promotion dimension of PRF. The differences can be explained in part by the larger variances and higher mean scores of surgency in U.S. compared to Chinese parents' report of their children. This accords with previous literature that indicates higher activity level, approach, and positive mood in American infants and children (Hsu, Soong, Stigler, Hong, & Liang, 1981; Ahadi et al., 1993). Moreover, Porter et al. (2005) indicated the linkage between child temperament and parenting styles vary across China and U.S., thus suggesting more complex cultural differences may exist beyond correlations identified in the current analyses for scale validation.

Besides the consistent findings around self-regulatory focus and inconsistent findings around self-construals and child temperament, PRF's validity (i.e., parenting styles, child outcome, and parenting vignettes) with Chinese parents show more nuanced differences compared to findings from Study 2. In testing the incremental validity of PRF, across three studies, I used PRF to predict parenting styles and behaviors in juxtaposition with self-regulatory focus predictors. Overall, the results are in line to support the added variances from PRF ( $R^2$  ranging from 3% to 17%), above and beyond

self-regulatory focus, in predicting parenting styles and behaviors. The unique contribution ranges from 1% to 14% for promotion PRF, and from 1% to 11% for prevention PRF. However, the evidence for the incremental validities are only indicated in warmth and protection dimensions in the Chinese sample, rather than all dimensions in the U.S. sample. In other words, only 3 out of the 13 hierarchical regression models (i.e., 3 in Study 1, 5 in Study 2, and 5 in Study 3) performed were not statistically significant. In light of the cross-cultural confounds in parenting styles research (Stewart & Bond, 2002), out of the five dimensions examined in Study 2 and 3, warmth (related to authoritative), physical coercion (related to authoritarian), and non-reasoning (related to authoritarian) were considered to be more emphasized in North America, and shaming/love withdrawal and protection were considered to be more emphasized in China according to Wu et al.'s (2002) cross-cultural findings. Interestingly, warmth and protection dimensions were areas of parenting styles and practices that demonstrate incremental validity in Chinese parent sample. One possible explanation is Chinese parents might be more prone to social desirability in reporting on the physical coercion, non-reasoning, and shaming dimensions, particularly given the sample was collected via school settings where participants may have a lower sense of anonymity compared to Study 1 (state fair event) and Study 2 (online MTurk survey). Another possible explanation is that participants were self-selected in Study 3 compared to Study 2. In Study 2, participants were unknown to the intention of the study when they responded to the initial survey; whereas in Study 3, parents were informed about the study information

via children's school settings, and it may be that only highly motivated and involved parents chose to participate in the survey.

These explanations around social desirability and sample bias may also contribute to the differences observed in findings in Study 2 and Study 3 around child outcomes. I theorized that both promotion and prevention parenting regulatory foci could lead to successful child outcome. In Study 3, PRFs were only found to be related to prosocial behaviors, but neither with externalizing (hyperactivity and conduct problems) nor internalizing (emotional and peer problems) behaviors, which might be more subject to social desirability. In contrast, in Study 2, promotion PRF was correlated with less emotional problems, prevention PRF was correlated with less hyperactivity, and both PRFs were correlated with less conduct problems, less peer problems, and more prosocial behaviors. In addition, in Study 2 and Study 3, promotion was a stronger than prevention PRF at predicting more prosocial behaviors.

Furthermore, in the concurrent validity with parenting vignettes across three studies, PRF consistently indicated excellent prediction of parenting choices in parenting vignettes where parents had to choose in between promotion or prevention message framings. However, findings were inconsistent in terms of whether promotion PRF, prevention PRF, or both PRF subscales were significant predictors across these logistic regression models. Similar as Study 2, the findings vary across Vignettes 2 to 4 in Study 3 as well, when parents were randomly into only promotion or prevention condition for each vignette. However, in Study 3, 10 out of 18 regression models conducted, 2 (PRF)

by 3 (Age groups) by 3 (Vignettes), were significant, and 7 of the 10 models were significant at the  $p = .05$  level. Overall, the findings from Study 3 are more in alignment with my hypotheses. There are no surprising findings that were opposite to our hypothesis as indicated in Study 2.

Last but not least, to adjust for the low reliabilities in some subscales (i.e., child temperament, parenting styles), as post-hoc analysis, I also ran correction for the attenuation following Spearman's (1910) double correction formula,

$$\rho_{xy} = \frac{r_{xy}}{\sqrt{r_{xx}}\sqrt{r_{yy}}}$$

where  $\rho_{xy}$  is the corrected validity coefficient,  $r_{xy}$  is the obtained validity coefficient,  $r_{xx}$  is the reliability of the PRF Scale, and  $r_{yy}$  is the reliability of the criterion. The disattenuated correlation coefficients can be viewed as the correlations between true scores in adjusting for the measurement errors. If the disattenuated correlation coefficients and the obtained correlation coefficients are near unity, it can be concluded the two tests are measuring the same trait (Joreskog, 1971). Disattenuation can also inform whether the correlation between two sets of measures is low because of measurement error or because two sets are really uncorrelated (Muchinsky, 1996). In examining the disattenuated correlation coefficients between PRF and criterion scales (see Appendix), the scores by large converge with the magnitude of the unadjusted correlation coefficients in Table 11. However, the disattenuation indicates the low range of correlation coefficient between PRF prevention subscale and protection dimension of parenting styles may be due to the low reliabilities.

### **Measurement Invariance**

Although a few psychometric indices differ across U.S. and Chinese parent samples as described above, overall construct validity was good, if not better, within the Chinese sample. Further examination of measurement invariance across Study 2 and Study 3 is warranted, which will help facilitate understanding of the differences in interrelationships among studied constructs.

The most important finding to emerge from the multi-group CFAs is that PRF demonstrate configural, metric, and partial scalar invariance between U.S. and Chinese parent samples. Thus, the factor structure and the individual loadings of all PRF Scale items were invariant, but the individual item mean/intercept scores differ across two groups. differences. Previous research meaningful comparisons can still be made without full measurement invariance (Bryne, Shavelson, & Muthén, 1989). But the lack of full scalar invariance may make it more challenging to interpret the differences in latent variable means, because such difference may reflect the observed variable instead.

I compared the latent means by constraining the model to the final error variance invariant model, and the result suggest, in Study 2 and Study 3 samples, American and Chinese parents are comparable in prevention PRF, but American parents are higher on promotion PRF compared to Chinese parents. This finding perhaps is somewhat surprising. Past research on self-regulatory focus (Aaker & Lee, 2001; Lee, Aaker, & Gardner, 2000) has characterized Chinese participants to endorse higher levels of prevention self-regulatory focus (and lower levels of promotion self-regulatory focus),



which may indicate a higher prevention parenting regulatory focus as well. However, as noted previously, one's parenting domain-specific regulatory focus may not directly translate from one's self-regulatory focus; and the east-west dichotomized method paradigm to understand self-regulatory focus may have not captured more nuanced cultural differences. Further research is much needed to investigate the implications of these cross-cultural findings in parenting regulatory focus.

## CHAPTER 5: GENERAL DISCUSSION

The purpose this dissertation study was to propose the theory on parenting regulatory focus and to develop the PRF Scale to quantitatively and effectively measure the construct of parenting regulatory focus in both U.S. and Chinese parents. Parenting regulatory focus as a construct was derived from the notions of self-regulatory focus theories (Higgins, 1997). The effort to create a two-factor scale was fully supported by the results of factor analyses across three studies. The PRF Scale has overall demonstrated strong reliabilities and validities as well as partial measurement invariances across two national groups.

The PRF Scale is the first empirical measure to provide support for the theoretical construct of parenting regulatory focus. Philosophically, just as a general self-efficacy measure (e.g., Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, & Rogers, 1982) would not capture individuals' perceived ability in mathematics (Bandura, 1986; Schunk, 1991), a general self-regulatory focus measure would not adequately portrait parents' motivations towards child-rearing (Higgins, 2000). This is the unique contribution of the PRF Scale to the parenting and regulatory focus literature.

The methodological complexity across three studies provide convergent evidence to support the psychometric properties of the PRF Scale. In Study 1, a large, convenience sample was collected in-person at a state fair event. I used 25% split sample for EFA for factor identification and 75% for item reduction. The sample is predominant White, high SES, likely due to a self-selected participants pool that presented in the research booth at

one of the largest public events in this predominantly White state. In Study 2, I employed an innovative, two-step, online data collection methodology (Huff & Tingley, 2015), to collect a racially diverse sample, with a relatively equal split of fathers and mothers. It is worth noting that participants in Study 2 were not notified of the study intention during Step 1 when they filled out the demographic screener, thus there may be less sample biases. Indeed, the sample demographic characteristics reflect more closely to U.S. Census data in terms of state residency, educational attainment, and annual family income. More importantly, the factor structure, reliability, and validity were similar in these two distinct U.S. samples. In Study 3, I collected a Chinese parent sample through school settings at three Chinese cities. The sample and the data collection methodology in Study 3 differed drastically from Study 1 and Study 2. Again, the factor structure, reliability, and validity held in the Chinese sample, albeit cross-cultural differences existed across the two national samples. Therefore, methodology rigor is one outstanding strength of the current dissertation study, and has promising research implications, especially the two-step stratified online sampling methodology utilized in Study 2.

Perhaps because differences are so much easier to discuss, it seems inevitable that the bulk of the attention will focus on cross-cultural differences. However, it is important at the outset to emphasize and maintain the essential sameness of parenting regulatory focus across the two nations. Ultimately, parenting regulatory focus refers to the underlying psychological processes that drive parenting behaviors. The two distinct yet coexisting dimensions of promotion and prevention parenting regulatory focus was

conceptualized to capture universal psychological process applicable across cultural context, more “culture-free” compared to parenting styles and behaviors. The measurement invariance statistics are strong enough so that one must be careful even in positing cross-cultural differences in parenting regulatory focus. The endeavor in the current study should be the first step that provides the measurement evidence, or lack thereof, to warrant future studies for any valid cultural comparisons.

Several areas for future direction are worth noting. First, the PRF Scale may serve as an important measurement tool to disentangle the complex findings in cultural differences between parenting styles and child outcome. Parenting regulatory focus may moderate the effect of authoritarian parenting styles on child outcome in African Americans and Asian American families (Spera, 2005). Chao (1994, 2001), for example, argued the authoritarian parenting behaviors in Chinese American families is motivated differently and involves a high level of concern and care for children. In addition, further analyses can examine the distal-proximal model in an SEM model to empirically examine the antecedents and consequences of the parenting regulatory focus (Lanaj et al., 2012). Moreover, the measurement invariance testing, limited for the sample sizes in the current studies, should be extended to in future studies to several other important demographics, parent gender, SES, age of children, and gender of children. The measurement invariance, if held across these demographic variables, will allow further analyses to understand how parenting regulatory focus may vary as a function of parent gender, SES, age of children, or gender of children. For example, given the father-mother differences

in parenting styles and its differential impact on child outcomes (Martin, Ryan, & Brooks-Gunn, 2007; Simons & Conger, 2007), parenting regulatory focus may add another important dimension to disentangle these gender differences.

An assessment measure of parenting regulatory focus can make an essential contribution to understanding the psychological processes underlying parenting behaviors. It can also significantly contribute to the broader regulatory focus literature. Current study raises the question that whether regulatory focus should be construed and measured in specific domains, such as work regulatory focus (Brockner & Higgins, 2001; Wallace, John, & Frazier, 2009) or parenting regulatory focus. Research on work regulatory focus (Lanaj et al., 2012) and preliminary evidence from the current study seem to refute the notion of high transference of regulatory focus across domains. I also foresee that parenting regulatory focus can have important clinical implications in designing and engaging clients in parenting interventions. Prior marketing and health intervention studies have noted the importance of regulatory fit to engage consumers in respective promotion or prevention strategies (Adams et al., 2011; Crow & Higgins, 1997; Strauman et al., 2006). Thus, with a valid measurement of parenting regulatory focus, such tailoring can also be incorporated in parenting in order to enhance the program engagement.

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## APPENDIX A: PARENTING REGULATORY FOCUS

As you think about your goals for [your child], please rate the extent which you agree with the following statements. It is important for [your child] ...

1 = strongly disagree, 2 = moderately disagree, 3 = somewhat disagree,  
4 = somewhat agree, 5 = moderately agree, 6 = strongly agree

1. **To try out new activities\***
2. **To pursue what he/she wants in life\***
3. **To do challenging things even if it leads to failure\***
4. **To be willing to take chances\***
5. To be safe rather than sorry\*
6. **To have the self-confidence to do anything\***
7. **To follow his/her dream**
8. **To do what he/she wants in life**
9. To play it safe when playing games or sports
10. **To know that it is better to try and fail, than not to try at all**
11. **To try doing things on his/her own in order to learn\***
12. **To solve problems by being creative**
13. To know that if he/she is not careful he/she will get hurt\*
14. **To be himself/herself without worrying what others think\***
15. **To learn to be accountable**
16. To do what I expect from him\*
17. **To take risks so that he/she can be the best\***
18. To know right from wrong to stay safe
19. **To become whatever he/she wants to be**
20. **To push his/her limits**
21. **To take chances when playing games or sports**
22. To avoid doing things that may lead to trouble\*
23. **To have fun in life**
24. To behave well in order to succeed
25. To always follow instructions in order to learn
26. **To experience many positive opportunities**
27. To avoid getting into trouble
28. To avoid risky situations\*
29. To think about his/her safety first\*
30. To be careful and cautious\*
31. To always follow the rules\*

*Note.* Blacked are the promotion-oriented items (N=18), and non-blackened are the prevention-oriented items (N=13). Asterisked are the 16 items selected via factor

analyses. These 16 asterisked items are translated into Chinese and administered across three studies.

#### 父母养育调节焦点量表

回想您对孩子的目标，并请评价您对以下观点的同意程度。

1=非常反对 2=一定程度上反对 3=有点反对 4=有点同意 5=一定程度上同意 6=非常同意

**对孩子来说，我认为让他或她\_\_\_\_\_是重要的。**

例如，对孩子来说，我认为让他或她尝试新的活动是重要的。如果您选择 2，表示您在一定程度上反对这个观点。

1. 尝试新的活动
2. 追求他或她在生活中想要的
3. 即使会失败，也要去做有挑战的事情
4. 愿意去把握机会
5. 保证安全而不是后悔遗憾
6. 有自信地做所有事
7. 通过独立尝试来学习
8. 明白如果他或她不小心就会受伤
9. 做自己而不担心他人的看法
10. 做我期待他或她做的事
11. 接受冒险从而成为最优秀的
12. 避免做会带来麻烦的事情
13. 避免冒险的情况
14. 考虑安全第一
15. 要小心谨慎
16. 始终遵守规则

## APPENDIX B: REGULATORY FOCUS QUESTIONNAIRE

(RFQ; Higgins et al., 2001)

This set of questions asks you about specific events in your life. Please indicate your answer to each question about the extent to which you agree with each statement.

1. Compared to most people, I am unable to get what I want out of life.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very often

2. Growing up, I would "cross the line" by doing things that my parents would not tolerate.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very often

3. I have accomplished things that got me "psyched" to work even harder.

1	2	3	4	5
Never	Rarely	A few times	Some times	Many times

4. I got on my parents' nerves when I was growing up.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very often

5. I obeyed rules and regulations that were established by my parents.

1	2	3	4	5
Never	Rarely	Sometimes	Many times	Always

6. Growing up, I acted in ways that my parents thought were objectionable.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very often

7. I do well at different things that I try.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very often

8. Not being careful enough has gotten me into trouble at times.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very often

9. When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.

1	2	3	4	5
Never true	Rarely true	Sometimes true	Often true	Very often true

10. I feel like I have made progress toward being successful in my life.

1	2	3	4	5
Certainly false	Somewhat false	Neither true nor false	Somewhat true	Certainly true

11. I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.

1	2	3	4	5
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Certainly false	Somewhat false	Neither true nor false	Somewhat true	Certainly true
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*Note.* Promotion subscale includes Items 1, 3, 7, 7, 10, and 11, and prevention subscale includes Items 2, 4, 5, 6, and 8.

#### 调节焦点量表

下列问题是关于你过去的生活事件发生的频率，请针对各题目圈选适当的答案。1

= 从来没有，3 = 有时候，5 = 很常发生

1. 与多数人相比，在你生活中你通常无法得到你想要的
2. 在成长的过程中，你有没有做过什么太过分的事情是你父母无法忍受的？
3. 你有多常完成那种让你兴奋得想要更努力去做的事？
4. 在成长的过程中，你有多常惹父母生气？
5. 你有多常遵守父母订定的规矩？
6. 在成长的过程中，你是否有过任何行径让父母觉得很反叛？
7. 在你尝试做的各种不同的事上，你常常做得很好吗？
8. 我过去常因为不够细心而惹上麻烦。
9. 对于达成那些对我而言重要的事，我发现我表现没有我理想中来得好。
10. 我觉得我朝著成功的人生目标在进步。
11. 我生活中很少有嗜好或活动可以引起我兴趣，或激发我想要投入心力的动机。

*Note.* Promotion subscale includes Items 1, 3, 7, 7, 10, and 11, and prevention subscale includes Items 2, 4, 5, 6, and 8.



## APPENDIX C: GENERAL REGULATORY FOCUS MEASURE

(GRFM; Lockwood et al., 2002)

Please indicate your answer to each question about the extent to which you agree with each statement on a scale:

- 1 = Not at all true of me
- 3 = Slightly true of me
- 5 = Moderately true of me
- 7 = True of me
- 9 = Very true of me

1. In general, I am focused on preventing negative events in my life.
2. I am anxious that I will fall short of my responsibilities and obligations.
3. I frequently imagine how I will achieve my hopes and aspirations.
4. I often think about the person I am afraid I might become in the future.
5. I often think about the person I would ideally like to be in the future.
6. I typically focus on the success I hope to achieve in the future.
7. I often worry that I will fail to accomplish my academic goals.
8. I often think about how I will achieve academic success.
9. I often imagine myself experiencing bad things that I fear might happen to me.
10. I frequently think about how I can prevent failures in my life.
11. I am more oriented toward preventing losses than I am toward achieving gains.
12. My major goal in school right now is to achieve my academic ambitions.
13. My major goal in school right now is to avoid becoming an academic failure.
14. I see myself as someone who is primarily striving to reach my “ideal self”—to fulfill my hopes, wishes, and aspirations.
15. I see myself as someone who is primarily striving to become the self I “ought” to be—to fulfill my duties, responsibilities, and obligations.
16. In general, I am focused on achieving positive outcomes in my life.
17. I often imagine myself experiencing good things that I hope will happen to me.
18. Overall, I am more oriented toward achieving success than preventing failure

请评价您对以下观点的同意程度：

- 1 =一点也不符合我
- 3 = 有一点符合我
- 5 = 比较符合我
- 7 = 符合我
- 9 = 非常符合我

1. 一般而言，我会把注意力放在防止负面的事情发生在我的生活中。
2. 我担心我会无法尽到我的责任与义务。

3. 我常想我要如何才能实现我的愿望和抱负。
4. 我常想到那种我害怕自己将来可能成为的人。
5. 我常想到在我理想中自己将会成为的那种人。
6. 我通常会将注意力集中于我未来希望达到的成功上。
7. 我常担心无法达到我事业或学业上的目标。
8. 我常会想如何才能使我的事业或学业成功。
9. 我常想像经历那些我害怕会发生在自己身上的坏事。
10. 我常会想如何才能避免失败在我的生活中发生。
11. 我比较倾向于避免损失多于追求收获。
12. 目前我在学校主要的目标是取得事业或学业上的成就。
13. 目前我在学校主要的目标是避免事业或学业上的失败。
14. 我觉得自己是那种努力去实现“理想中的我”的人——实现我的希望、愿望和抱负。
15. 我觉得自己是那种努力成为我”应该“做的人——完成我的本分、责任和义务。
16. 一般而言，我注重追求生命中正面的结果。
17. 我常想像经历那些我希望会发生在自己身上的好事情。
18. 总而言之，我比较倾向于追求成功多于避免失败。

*Note.* The wordings on “academic” were changed to “academic or career” for this older adult populations. Promotion chronic regulatory focus subscale was composed of Items 3, 5, 6, 8, 12, 14, 16, 17, 18. Prevention chronic regulatory focus subscale was composed of Items 1, 2, 4, 7, 9, 10, 11, 13, and 15.

## APPENDIX D: PARENTING STYLES DIMENSIONS QUESTIONNAIRE

(PSDQ-Short Version; Robinson et al., 2001)

This questionnaire is designed to measure *how often* you exhibit certain behaviors towards your child (1 = Never; 2 = Once in a while; 3 = About half of the time; 4 = Very often; 5 = Always). Please read each item on the questionnaire and think about *how often* you exhibit this behavior and choose your response.

这份问卷是用来测量：您自己有多经常向您的孩子表现出这种行为（1=从不；2=偶尔；3=大约半数时候；4=很经常；5=总是）。阅读问卷中的每个条目，想一想您有多经常表现这一行为。

### Study 1

1. Gives [target child] reasons why rules should be obeyed.
2. Helps child to understand the impact of behavior by encouraging child to talk about the consequences of his/her own actions.
3. Explains the consequences of [target child]'s behavior.
4. Emphasizes the reasons for rules.
5. Explains to child how you feel about his/her good and bad behavior.
6. Shows respect for [target child]'s opinions by encouraging [target child] to express them.
7. Encourages child to freely express himself/herself even when disagreeing with parents.
8. Allows [target child] to give input into family rules.
9. Takes [target child]'s desires into account before asking [target child] to do something.
10. Takes into account [target child]'s preferences in making plans for the family.
11. Punishes by taking privileges away from [target child] with little if any explanations.
12. Uses threats as punishment with little or no justification.
13. Punishes by putting [target child] off somewhere alone with little if any explanations.
14. When child asks why he/she has to conform, you state: because I said so, or I am your parent and I want you to.

*Note.* Items 1-5 are Regulation Dimension (Reasoning/Induction); items 6-10 are Autonomy Granting Dimension (Democratic Participation); items 11-14 are Non-Reasoning/Punitive Dimension.

### Study 2

1. Gives praise when child is good.
2. Expresses affection by hugging, kissing, and holding child.
3. Tells child that I appreciate what the child tries or accomplishes.

4. Gives comfort and understanding when child is upset.
5. Show sympathy when child is hurt or frustrated.
6. Aware of problems or concerns about child in school.
7. Encourages child to talk about the child's troubles.
8. Uses physical punishment as a way of disciplining child.
9. Spanks when child is disobedient.
10. Slaps child when the child misbehaves.
11. Grabs child when being disobedient.
12. Guides child by punishment more than by reason.
13. Punishes by taking privileges away from child with little if any explanation.
14. Punishes by putting child off somewhere alone with little if any explanations.
15. When child asks why s/he has to conform, states: because I said so, or I am your parent and I want you to.
16. Tell child that I get embarrassed when he/she does not meet my expectations.
17. Makes child feel guilty when he/she doesn't meet my expectations.
18. Tell child that he/she should be ashamed when he/she misbehaves.
19. Less friendly with child if he/she does not see things our way.
20. Supervise all of my child's activities.
21. Expect child to be close by when playing.
22. Overly worry about child getting hurt.

### Study 3

1. 在孩子乖的时候会赞扬孩子
2. 以拥抱、亲吻孩子的方式表达亲情
3. 告诉孩子我们欣赏他/她的尝试和成就
4. 在孩子难过时会对孩子表示理解和安慰
5. 在孩子受到伤害或挫折时很同情孩子
6. 关切或了解孩子在学校遇到的问题
7. 鼓励孩子谈他/她遇到的麻烦
8. 用体罚作为一种管教孩子的方式
9. 在孩子行为不当时打孩子
10. 在孩子不听话时推搡孩子
11. 在孩子不听话时会拉拽孩子
12. 他/我更多地是通过惩罚而不是讲道理引导孩子
13. 以剥夺权利的方式惩罚孩子时，不作或很少作解释
14. 让孩子独自呆在一边的方式惩罚孩子而不(或很少)作解释
15. 在孩子问为什么她/他要服从时，会说：因为这是我说的，或我是你父母，我要你这样做
16. 告诉我们孩子，当他/她没有满足我们的期望时，我们感到难堪
17. 在孩子不符合我们的期望时让孩子感到内疚

- 18. 告诉我们孩子应当对行为不当时感到羞耻
- 19. 在孩子不以我的方式看事情时，会对孩子不够友好
- 20. 想控制孩子做的任何事
- 21. 期望我们的孩子在我们附近玩
- 22. 过于担心我们的孩子会受伤害

*Note.* Items 1-7 are Warmth/Acceptance Dimension (Connection); items 8-12 are Physical Coercion Dimension; items 13-15 are Non-Reasoning/Punitive Dimension; items 16-19 are Shaming/Love Withdrawal Dimension; items 20-22 are Protection Dimension. Only items 13, 14, and 15 from Study 2 & 3 overlap with the Study 1 items.

## APPENDIX E: CHILD BEHAVIOR QUESTIONNAIRE

Please read each statement and decide whether it is a "true" or "untrue" description of your child's reaction within the past six months. Use the following scale to indicate how well a statement describes your child:

Choose a number if the statement is:

- 1 = extremely untrue of your child
- 2 = quite untrue of your child
- 3 = slightly untrue of your child
- 4 = neither true nor false of your child
- 5 = slightly true of your child
- 6 = quite true of your child
- 7 = extremely true of your child

If you cannot answer one of the items because you have never seen the child in that situation, for example, if the statement is about the child's reaction to your singing and you have never sung to your child, then mark NA (not applicable).

Please choose a number or NA for every item.

Within the past six months, my child:

1. Seems always in a big hurry to get from one place to another.
2. Likes going down high slides or other adventurous activities.
3. Often rushes into new situations.
4. Seems to be at ease with almost any person.
5. Prefers quiet activities to active games.
6. Likes to go high and fast when pushed on a swing.
7. Takes a long time in approaching new situations.
8. Is sometimes shy even around people s/he has known a long time.
9. Is full of energy, even in the evening.
10. Likes rough and rowdy games.
11. Is slow and unhurried in deciding what to do next.
12. Sometimes turns away shyly from new acquaintances.
13. When drawing or coloring in a book, shows strong concentration.
14. Prepares for trips and outings by planning things he/she will need.
15. Likes being sung to.
16. Notices it when parents are wearing new clothing.
17. When building or putting something together, becomes very involved in what s/he is doing, and works for long periods.
18. Is good at following instructions.
19. Likes rhymes or songs.
20. Is quickly aware of some new item in the living room.
21. Sometimes becomes absorbed in a book and looks at it for a long time.
22. Approaches places s/he has been told are dangerous slowly and cautiously.

23. Enjoys gentle rhythmic activities, such as rocking or swaying.

24. Comments when a parent has changed his/her appearance

请根据您的孩子在过去 6 个月的行为反应，来判断以下描述的恰当性，并从七个恰当性等级中选择一个最符合您孩子实际情况的一项。这七个等级分别是：

- 1 - 非常不符合
- 2 - 很不符合
- 3 - 有点不符合
- 4 - 不确定
- 5 - 有点符合
- 6 - 很符合
- 7 - 非常符合

如果您因为没有观察过您的孩子在某些情境中的反应而无法回答，例如，某项描述是关于您的孩子在您唱歌时的反应，而您从未对孩子的孩子唱过歌，那么在不适用上划圈。每个项目都需要回答，请不要漏题。

- 1. 似乎总是匆匆忙忙地从一个地方到另一个地方
- 2. 喜欢滑高的滑梯或其它冒险性活动
- 3. 经常贸然进入陌生情境
- 4. 好像与任何人在一起都很自在
- 5. 相对于活跃性的游戏，更喜欢安静的活动
- 6. 在荡秋千时喜欢荡得又快又高
- 7. 需要花很长的时间适应新环境
- 8. 即使和他 / 她认识了很长时间的人在一起，有时也会害羞
- 9. 即使在晚上，也精力充沛
- 10. 喜欢可以大声喧闹的游戏
- 11. 会缓慢而不匆忙地决定接下来要做的事
- 12. 有时会对刚认识的人害羞地转过脸去
- 13. 在书上画图或涂色时表现得非常专注
- 14. 在旅行或外出前，他 / 她会准备自己需要的东西
- 15. 喜欢别人给他唱歌
- 16. 当父母穿了新衣服时，能注意到
- 17. 当搭建或者组装某些东西时，变得非常投入且玩很长时间
- 18. 善于按照要求行动
- 19. 喜欢韵律童谣或者歌曲
- 20. 能很快注意到客厅里的新东西
- 21. 有时会被书深深吸引并看好长时间
- 22. 会缓慢、小心地靠近被告知有危险的地方

- 23. 喜欢节奏轻柔的活动，比如摇摆
- 24. 会评价父母外型的改变

*Note.* Items 1-12 are Surgency and Items 13-24 are Effortful Control Dimensions.



## APPENDIX F: STRENGTH AND DIFFICULTIES QUESTIONNAIRE

(SDQ; Goodman, 2001)

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of the child's behavior over the last six months or this school year.

1. Considerate of other people's feelings
2. Restless, overactive, cannot stay still for long
3. Often complains of headaches, stomach-aches or sickness
4. Shares readily with other children, for example toys, treats, pencils
5. Often loses temper
6. Rather solitary, prefers to play alone
7. Generally well behaved, usually does what adults request
8. Many worries or often seems worried
9. Helpful if someone is hurt, upset or feeling ill
10. Constantly fidgeting or squirming
11. Has at least one good friend
12. Often fights with other children or bullies them
13. Often unhappy, depressed or tearful
14. Generally liked by other children
15. Easily distracted, concentration wanders
16. Nervous or clingy in new situations, easily loses confidence
17. Kind to younger children
18. Often lies or cheats
19. Picked on or bullied by other children
20. Often offers to help others (parents, teachers, other children)
21. Thinks things out before acting
22. Steals from home, school or elsewhere
23. Gets along better with adults than with other children
24. Many fears, easily scared
25. Good attention span, sees work through to the end

## 长处与困难调查表

对于下面的各个题，请在相应的格上画勾，以表明是否适合 这名孩子的情况 - 是“不真实”，“有点真实”，还是“完全真实”。请根据这孩子过去六个月或这学年的行为来回答。请务必回答每一道题，即使你对某一题不是十分确定。

1. 能体谅到别人的感受
2. 不安定、过分活跃、不能长久静止
3. 经常抱怨头痛、肚子痛或恶心
4. 很乐意与别的小孩分享东西（糖果、玩具、笔等等）
5. 经常发脾气，易怒
6. 颇孤独，比较多自己玩
7. 一般来说比较顺从，通常是成年人要求要做的都肯做
8. 有很多担忧，经常表现出忧虑
9. 如果有人受伤、沮丧或是生病，都很乐意提供帮助
10. 当坐着时，会持续不断地摆弄手脚或扭动身子
11. 至少有一个好朋友
12. 经常与别的小孩吵架或欺负他们
13. 经常不高兴、情绪低落或哭泣
14. 一般来说，受别的小孩所喜欢
15. 容易分心，不能全神贯注
16. 在新的情况下，会紧张或爱粘人，容易失去信心
17. 对年纪小的小孩和善
18. 经常撒谎或欺骗
19. 受别的小孩作弄或欺负
20. 经常自愿地帮助别人（父母、老师或其他小孩）
21. 做事前会思考
22. 从家里、学校或其他地方偷东西
23. 跟成年人相处比跟小孩相处融洽
24. 对很多事物感到害怕，容易受惊吓
25. 做事情能做到底，注意力持久

## APPENDIX G: SELF-CONSTRUAL SCALE

(SCC; Singelis, 1994)

Rate the extent you agree with the following statements from 1 = strongly disagree to 7 = strongly agree.

1. *I value being in good health above everything.*
2. *I have respect for authority figures with whom I interact.*
3. *Even when I strongly disagree with group members, I avoid an argument.*
4. *My happiness depends on the happiness of those around me.*
5. *I will sacrifice my self-interest for the benefit of the group I am in.*
6. *I act the same way no matter who I am with.*
7. *I prefer to be direct and forthright when dealing with people I've just met.*
8. *I should take into consideration my parents' advice when making education/career plans.*
9. *I am comfortable with being singled out for praise or rewards*
10. *I will stay in a group if they need me, even when I am not happy with the group.*
11. *I feel comfortable using someone's first name soon after I meet them, even when they are much older than I am.*
12. *Being able to take care of myself is a primary concern for me.*
13. *It is important for me to maintain harmony within my group.*
14. *I would offer my seat in a bus to my professor.*
15. *Having a lively imagination is important to me.*
16. *I often have the feeling that my relationships with others are more important than my own accomplishments.*
17. *I enjoy being unique and different from others in many respects.*
18. *If my brother or sister fails, I feel responsible.*
19. *I respect people who are modest about themselves.*
20. *My person identity independent of others, is very important to me.*
21. *Speaking up during a class is not a problem for me.*
22. *I'd rather say "No" directly, than risk being misunderstood.*
23. *I am the same person at home that I am school.*
24. *It's important to me to respect decisions made by the group.*

## 自我建构量表

请就下列题目，用 1-7 量表指出你的同意程度。1 = 非常不同意，2 = 不同意，3 = 有点不同意，4 = 中立，5 = 有点同意，6 = 同意，7 = 非常同意

1. 我认为拥有健康比什么都有价值。
2. 我尊重所有与我有交往过的权威人士。
3. 即使在我非常不赞同小组成员意见的时候，我也避免争论。
4. 我的快乐有赖于周围的人们的快乐。
5. 为了所在的小组的利益我会牺牲自己的利益。
6. 无论和谁在一起，我的行为举止都一样。
7. 我更喜欢用直截了当的方式与刚认识的人交往。
8. 在决定教育/职业计划时，我会考虑父母的建议。
9. 被单独挑出来表扬或奖励，我觉得挺舒服。
10. 即使在所属的小组中并不开心，但如果他们需要，我还是会留下。
11. 我能和初次见面的人坦诚交谈，即使这个人比我的年龄大得多。
12. 我最关心的是能把自己照顾好。
13. 我所在的小组保持融洽，这对我很重要。
14. 我在公共汽车上会把自己的位置让给我认识的教授。
15. 有生动的想象力对我很重要。
16. 我经常感到，与他人的良好关系胜过自己个人的成就。
17. 在很多方面，我享受自己是独一无二的和跟别人不同的。
18. 如果我的兄弟姐妹失败了，我觉得自己也有责任。
19. 我尊重那些谦虚地看待自己的人
20. 我的个人身份，不依赖于他人，对我非常重要。
21. 在课堂上说出我自己的意见不是一个难题。
22. 我宁愿直接说“不”，也不愿冒被误解之险。
23. 我在家里和在学校里（或在工作中）表现一样。
24. 尊重所在小组的决定，这对我很重要。

*Note.* Items 1, 6, 7, 9, 11, 12, 15, 17, 20, 21, 22, and 23 are independent subscale; items 2, 3, 4, 5, and 8 are interdependent subscale

## APPENDIX H: BIG FIVE INVENTORY

(John & Srivastava, 1999)

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement. (1 = Disagree Strongly, 2 = Disagree a little, 3 = Neither agree nor disagree, 4 = Agree a little, 5 = Agree Strongly)

I see myself as someone who ...

*Note.* Extraversion: 1, 6(rev), 11, 16, 21(rev), 26, 31(rev), 36,  
 Agreeableness: 2(rev), 7, 12(rev), 17, 22, 27(rev), 32, 37(rev), 42  
 Conscientiousness: 3, 8(rev), 13, 18(rev), 23(rev), 28, 33, 38, 43(rev)  
 Neuroticism: 4, 9(rev), 14, 19, 24(rev), 29, 34(rev), 39,  
 Openness to Experience: 5, 10, 15, 20, 25, 30, 35(rev), 40, 41, 44

1. Is talkative
2. Tends to find fault in others
3. Does a thorough job
4. Is depressed, blue
5. Is original, comes up with new ideas
6. Is reserved
7. Is helpful and unselfish with other
8. Can be somewhat careless
9. Is relaxed, handles stress well
10. Is curious about many different things
11. Is full of energy
12. Starts quarrels with others
13. Is a reliable worker
14. Can be tense
15. Is ingenious, a deep thinker
16. Generates a lot of enthusiasm
17. Has a forgiving nature
18. Tends to be disorganized
19. Worries a lot
20. Has an active imagination
21. Tends to be quiet
22. Is generally trusting
23. Tends to be lazy
24. Is emotionally stable, not easily upset
25. Is inventive
26. Has an assertive personality
27. Can be cold and aloof
28. Perseveres until the task is finished
29. Can be moody
30. Values artistic, aesthetic experiences
31. Is sometimes shy, inhibited
32. Is considerate and kind to almost everyone
33. Does things efficiently
34. Remains calm in tense situations
35. Prefers work that is routine
36. Is outgoing, sociable
37. Is sometimes rude to others
38. Makes plans and follows through with them
39. Gets nervous easily
40. Likes to reflect, play with ideas
41. Has few artistic interests
42. Likes to cooperate with others
43. Is easily distracted
44. Is sophisticated in art, music, literature

## 大五人格问卷

以下是一系列有关性格的描述，它们能确切地描述你吗？请以 1 至 5 表示你的同意程度。(1=非常不同意 2=不同意 3=中立 4=同意 5=非常同意)

我认为自己...

- |               |                    |
|---------------|--------------------|
| 1. 健谈         | 23. 懒散             |
| 2. 挑剔别人       | 24. 情绪稳定，不容易伤感     |
| 3. 把工作圆满办妥    | 25. 善于创造           |
| 4. 忧郁和沮丧      | 26. 个性武断           |
| 5. 有创意        | 27. 冷漠，与人疏理        |
| 6. 做事有保留      | 28. 做事坚持不懈，能贯彻始终   |
| 7. 乐于助人，为人不自私 | 29. 情绪化            |
| 8. 粗心大意       | 30. 着重艺术和美学        |
| 9. 懂得处理压力     | 31. 羞怯             |
| 10. 充满好奇心     | 32. 体贴友善           |
| 11. 活力充沛      | 33. 办事效率高          |
| 12. 会挑起争执     | 34. 能保持冷静来面对紧急情况   |
| 13. 是值得信赖的员工  | 35. 喜欢规律化的工作       |
| 14. 精神紧张      | 36. 外向和善于交际        |
| 15. 足智多谋，深思熟虑 | 37. 有时对人无礼         |
| 16. 热情        | 38. 做事有计划，并能遵照计划进行 |
| 17. 能原谅别人     | 39. 很容易紧张          |
| 18. 欠缺组织力     | 40. 爱反思和动脑筋        |
| 19. 事事忧虑      | 41. 少有艺术方面的兴趣      |
| 20. 想象力丰富     | 42. 喜欢与人合作         |
| 21. 沉默寡言      | 43. 很容易分心          |
| 22. 具诚信       | 44. 醉心于艺术，音乐或文学    |

## APPENDIX G: PARENTING VIGNETTES

### Study 1

Vignette 1. As a parent of a child, if you don't want your child to jaywalk (illegally cross the street), which way would you prefer to talk to your child:

- a. You might get hurt and get a ticket for breaking the law.
- b. You might get hurt and then not be able to play the rest of the summer.

Vignette 2. You want your child to go to a good college and to be successful in the future. Which way would you prefer to talk to your child:

- a. Going to college will be a great opportunity for you to grow. You will be able to try new things and take some risks to pursue your dream.
- b. Going to college will be an important step toward your future security. You will need to do what is expected and learn to become responsible.

### Study 2 & 3

Vignette 1. You want your child to be successful in college. You are more likely to say:

- a. Going to college will be a great opportunity for you to grow. You will be able to try new things and take some risks to pursue your dream.
- b. Going to college will be an important step toward your future security. You will need to do what is expected and learn to become responsible.

Vignette 2.

Randomized Promotion Condition. Your child is a picky eater. To encourage him or her to eat more vegetables, how likely are you going to tell your child: "When you eat vegetables, you will grow tall and strong."

Randomized Prevention Condition. Your child is a picky eater. To encourage him or her to eat more vegetables, how likely are you going to tell your child: "When you don't eat vegetables, you will not grow and get sick."

[1 = Very unlikely, 2 = Unlikely, 3 = Somewhat unlikely, 4 = Somewhat likely, 5 = Likely, 6 = Very likely]

Vignette 3.

Randomized Promotion Condition. When your child scores 70 out of 100 on a quiz, how likely are you going to praise getting 70% correct?

Randomized Prevention Condition. When your child scores 70 out of 100 on a quiz, how likely are you going to talk to him or her about the 30% incorrect?

[1 = Very unlikely, 2 = Unlikely, 3 = Somewhat unlikely, 4 = Somewhat likely, 5 = Likely, 6 = Very likely]



#### Vignette 4.

**Randomized Promotion Condition.** When your child scores 90 out of 100 on a quiz, how likely are you going to praise getting 90% correct?

**Randomized Prevention Condition.** When your child scores 90 out of 100 on a quiz, how likely are you going to talk to him or her about the 10% incorrect?

[1 = Very unlikely, 2 = Unlikely, 3 = Somewhat unlikely, 4 = Somewhat likely, 5 = Likely, 6 = Very likely]

#### Translated Chinese Version for Study 3

**Vignette 1.** 您希望您的孩子在大学里成功，您更有可能对您的孩子说：

- a. 上大学对你来说会是一个很好的成长机会。你将可以尝试到很多新东西，并闯荡去追寻你的梦想。
- b. 上大学对你来说会是一个保障你未来前途的关键一步。你要做大学生该做的事，并且要学会承担责任。

#### Vignette 2.

**Randomized Promotion Condition.** 您的孩子很挑食。为了鼓励他 / 她多吃蔬菜，您有多可能会告诉您的孩子：“你吃了蔬菜后会长得更高更壮。”

**Randomized Prevention Condition.** 您有一个挑食的孩子。为了鼓励他/她多吃蔬菜，您有多可能会告诉您的孩子：“你不吃蔬菜，就会长不高或生病。”

[1 = 非常不可能, 2 = 不太可能, 3 = 不可能, 4 = 可能, 5 = 相当可能, 6 = 非常可能]

#### Vignette 3.

**Randomized Promotion Condition.** 如果您的孩子在 100 分的小测验中拿了 70 分，您会多可能表扬他/她答对了 70% 的问题？

**Randomized Prevention Condition.** 如果你的孩子在 100 分的小测验中拿了 70 分，您会多可能针对做错了的 30% 和他/她进行谈话？

[1 = 非常不可能, 2 = 不太可能, 3 = 不可能, 4 = 可能, 5 = 相当可能, 6 = 非常可能]

#### Vignette 4.

**Randomized Promotion Condition.** 如果您的孩子在 100 分的小测验中拿了 90 分，您会多可能表扬他/她答对了 90% 的问题？

**Randomized Prevention Condition.** 如果你的孩子在 100 分的小测验中拿了 90 分，您有多可能会针对做错了的 10% 和他/她进行谈话？

[1 = 非常不可能, 2 = 不太可能, 3 = 不可能, 4 = 可能, 5 = 相当可能, 6 = 非常可能]

## APPENDIX H: DIATTENUATING CORRELATION COEFFICIENTS IN STUDY 3

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.PRF Promotion	0.55	0.21	<.01	0.26	0.47	0.48	0.04	-0.16	-0.06	-0.12	-0.01	-0.13	-0.07	-0.10	0.42
2.PRF Prevention	1.00	0.12	0.20	0.12	0.21	0.26	-0.04	-0.11	0.16	0.43	-0.04	-0.08	-0.01	0.06	0.28
3.GRFM Promotion		1.00	0.81	0.29	0.06	0.20	-0.12	-0.04	0.12	0.05	0.13	-0.02	0.08	-0.10	0.10
4.GRFM Prevention			1.00	0.22	-0.21	0.04	-0.04	0.01	0.15	0.30	0.07	-0.07	0.17	0.10	-0.03
5.CBQ Surgency				1.00	0.26	-0.03	-0.10	0.15	-0.21	-0.08	-0.23	-0.20	0.50	-0.31	0.29
6.CBQ Control					1.00	0.50	-0.11	-0.26	-0.31	-0.36	0.03	-0.05	-0.43	-0.50	0.56
7.Warmth						1.00	-0.24	-0.44	-0.23	0.04	0.17	<.01	-0.25	-0.25	0.45
8.Physical Coercion							1.00	0.77	0.68	0.43	-0.05	-0.06	0.60	0.44	-0.34
9.Non-reasoning								1.00	0.77	0.51	<.01	0.03	0.59	0.35	-0.32
10.Shaming									1.00	0.70	0.16	0.05	0.46	0.28	-0.31
11.Protection										1.00	0.05	0.05	0.39	0.42	-0.24
12.Independent											1.00	0.83	-0.07	-0.07	0.06
13.Interdependent												1.00	0.03	0.03	-0.07
14.Externalizing													1.00	0.70	-0.46
15.Internalizing														1.00	-0.38
16.Prosocial															1.00
Mean		5.44	4.75	4.19	5.20	4.11	1.86	1.73	2.40	2.86	4.70	4.00	5.77	4.32	7.74
Standard Deviations		1.60	1.54	.78	.88	.58	.71	.65	.68	.76	2.95	4.55	3.33	2.85	2.08
N		348	348	94	95	301	299	298	301	299	293	293	291	292	292